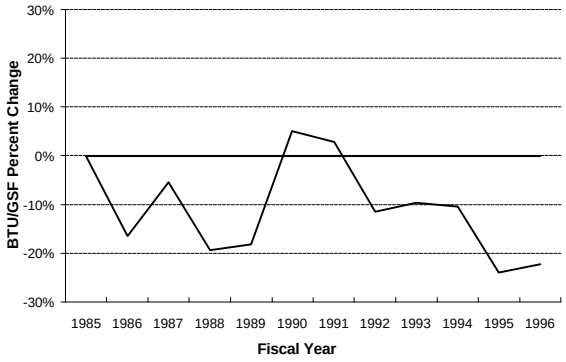
V. FEDERAL AGENCY ENERGY MANAGEMENT ACTIVITIES

1. DEPARTMENT OF AGRICULTURE (USDA)

Energy Efficiency Performance and Implementation Strategies

In FY 1996, the United States Department of Agriculture reported a decrease of 22.3 percent in Btu per gross square foot compared to FY 1985.

USDA Performance Toward Buildings Energy Reduction Goals



In FY 1996, the Energy and Environment Protection Staff under the Assistant Secretary for Administration, Policy Analysis and Coordination Center, Property Management Division (PACC) assumed energy program responsibilities from the Office of Operations, Washington Area Service Center (WASC).

The USDA Energy Management Plan delineates the Department's strategy to achieve the goals of Executive Order 12902. Components of the strategy include increasing occupant awareness, maintaining building envelope and systems, implementing no and low cost energy conservation actions, and using energy-saving techniques in building operation.

One of the Department's largest property holders, the Agricultural Research Service (ARS) conducted in-house surveys to gather data on building energy consumption by fuel type and gross square feet and developed a 10-year retrofit plan to accomplish all cost-effective retrofit measures in its high energy utilization facilities. This 10-year retrofit plan will be updated and refined annually based on the level of funding received by the energy program during the prior fiscal year. ARS's plan includes:

- conducting comprehensive energy audits and identifying cost-effective energy retrofit projects from FY 1997 through FY 2004; and
- from FY 1998 through 2005, designing cost-effective projects identified in prior years' audits.

The USDA has completed prioritization surveys of more than 120 Forest Service (FS) buildings for a total of nearly 2.4 million square feet. The Department of Energy is performing comprehensive energy audits on 305 FS buildings for a total of 1.4 million square feet through DOE's SAVEnergy program.

In FY 1996, the FS and the DOE formed a partnership, *Renew the Forests*, to expand the use of photovoltaics and other renewable energy systems in the nation's forests. More than 200 potential applications for photovoltaic systems were identified and 11 pilot projects implemented.

During FY 1996, WASC funded and awarded six energy conservation improvement projects; conducted a comprehensive audit of the Cotton Annex Building in Washington, DC and subsequently worked with GSA on designing its HVAC upgrade; and completed the construction of HVAC upgrades in the headquarters facilities. WASC also initiated the construction of the Beltsville Office Complex, an energy and water efficient showcase project featuring passive solar elements such as low-emissivity windows, building overhangs, and photo sensors, and is implementing the *South Building Modernization Plan* which will result in a showcase facility of about 2 million square feet.

The Farm Service Agency, USDA's major lease holder, reported the addition of an alternate energy award factor in the Solicitation for Offers which rewards offers that use alternative energy sources like solar, wind, geothermal or biomass.

Training

DOE's National Renewable Energy Laboratory provided a 2-day renewable training session for the Eastern Region facility engineers, 11 ARS employees received energy management training, and as part of the new Energy & Environment Staff, three PACC employees attended FEMP training. Two WASC engineers became Certified Energy Managers in FY 1996.

Training was provided in the following areas: designing low energy buildings, Federal energy management, energy savings performance contracting, life-cycle costing, energy policies, and mechanical systems.

Funding
Funds for energy efficiency activities come from operation, maintenance, repair, and construction accounts, to the extent such funding is available. The Office of Operations funded and awarded more than $365,000 in energy conservation improvements in FY 1996. These projects included: HVAC upgrades, steam system survey/repairs, lighting controls, and cooling towers piping and controls modifications.

ARS invested more than $3.8 million in energy conservation related projects as part of the Service's ongoing repair and maintenance and modernization program effort.

In FY 1996, the FS funded more than $390,000 in projects and implemented more than $175,000 in renewable energy projects and pilot projects, including photovoltaic power for lighting, venting, and water pumping systems.

Energy Savings Performance Contracts
The ARS Southern Plains Area has identified several potential sites for ESPCs and is working with DOE's Federal Management Program to participate in the DOE Regional Super ESPC.

The Forest Service, Region 4, and the Intermountain Research Station are evaluating an unsolicited proposal for an ESPC. The savings realized from the ARS and FS ESPCs will remain available to undertake additional energy conservation measures.

Demand Side Management
The Office of Operations is working with the Beltsville Design/Build firm to obtain utility rebates of approximately $500,000 from Potomac Electric Power Company (PEPCO) for the Beltsville Office Project. These rebates will allow the Office of Operations to build an energy efficient showcase facility.

Vehicles
The Department's alternative fuel vehicle (AFV) procurement plan aggressively proposes acquiring hundreds more AFVs, as funding and vehicle availability permit. Between FY 1993 and 1995, USDA has acquired approximately 242 AFVs. This total includes acquiring original equipment manufactured vehicles and converting existing fleet vehicles. Alternative fuel types include E-85 and M-85 flexible fuel sedans, dedicated and bi-fuel compressed natural gas trucks and vans, and a number of converted LPG trucks. USDA published and distributed a directory of 3,500 service stations that sell ethanol-blended gasoline.
The Department's Agriculture Property Management Regulations instruct agencies to implement vehicle sharing programs with co-located and closely situated agencies and activities in the field. The objectives of this program are to maximize vehicle utilization and to reduce associated cost and fuel consumption through vehicle pooling and sharing. The regulations also require operators to perform routine energy-saving tasks: inspect vehicles annually, follow the manufacturer's recommended maintenance schedule, check tire inflations, and obey posted speed limits.

The USDA is in the process of developing a Department-wide energy conservation and alternative fuel use outreach program. This program will include issuance of fact cards to be placed in the vehicle. The purpose of the fact cards is to remind operators of energy conservation measures such as removal of unnecessary weight from truck beds and trunks, proper inflation of tires to manufacturer's recommended levels on the tire sidewall, and preventive maintenance. The program will also emphasize the need for acquisition of alternative fuel vehicles to adhere to the requirements of EPACT and Executive Orders.

Energy Efficient Procurement
USDA has made significant progress in the procurement of environmentally sound, energy-efficient products, such as Energy Star microcomputers purchased by ARS, and products that contain a high percentage of recovered materials.

Environmental Activities
The Forest Service reports the following typical actions that have environmental benefits: reduction in the use of CFCs; use of high efficiency lighting; use of high efficiency window air conditioners; reduction of overall energy consumption in facilities; implementation of recycling programs; use of low flush toilets; use of low flow faucets and showers; use of programmable thermostats; and use of ridge vents for attic ventilation.

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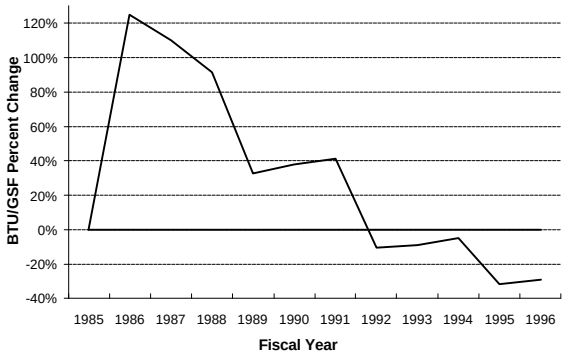
2. DEPARTMENT OF COMMERCE

Energy Efficiency Performance and Implementation Strategies

In FY 1996, the Department of Commerce reported a decrease in buildings energy consumption of 29.0 percent in Btu per gross square foot compared to FY 1985.

DOC Performance Toward Buildings Energy Reduction Goals



In FY 1996, the Commerce Department issued a comprehensive Strategic Implementation Plan (SIP) to supplement the Department Administrative Order on Federal Energy Management. The Order established energy policies, assigned responsibility for energy and water management, and outlined program guidelines. The SIP provides:

- individual conservation plans for the Herbert C. Hoover Headquarters Building, National Oceanic and Atmospheric Administration, National Institute of Standards and Technology, and the Bureau of Census;
- guidance for Commerce agencies and bureaus;
- reporting requirements;
- a list of facility energy supervisors; and
- a motor vehicle fuel reduction plan.

Commerce designated its headquarters, the Herbert C. Hoover Building, as a showcase for energy and water efficiency to meet requirements of Executive Order 12902. In addition to being the Department Headquarters, this historic landmark serves as the White House Visitors' Center and houses the National Aquarium. The Commerce Department, with assistance from the DOE's Federal Energy Management Program, developed a comprehensive energy and water conservation action plan for the Hoover Building. The plan identified eight energy conservation projects with a total estimated cost of $3 million that would save $745,000 annually.

Commerce is working with the General Service Administration to directly fund two major projects and is working with GSA and the DOE to fund a lighting and chiller retrofit through an energy saving performance contract. In addition, Commerce is working with GSA to implement water conservation projects that would save more than 50 million gallons of water per year.

At the National Oceanic and Atmospheric Administration (NOAA), the Facilities Management Division closely evaluated energy consumption to properly determine the correct reporting category for its sites. Of 41 sites, four were determined to be "energy intensive" and three determined to be "industrial." Even though these sites are reclassified, energy conservation projects resulted in significant savings in energy consumption. Projects include lighting retrofits, motor replacement, and installation of advanced controls.

NOAA's energy-intensive sites include the National Weather Service Headquarters where NOAA weather equipment is housed and operates 24 hours a day. NOAA's industrial sites include the Pacific Marine Center and shipyard with support for ten research vessels. The use of energy at the shipyard varies with the ships' schedules as the ships, while in port, are connected to the facility electric service which also supplies the buildings.

The National Weather Service is engaged in an extensive modernization program and is improving energy efficiency. The existing offices are being replaced with modern, technology-intensive, computerized, energy-efficient facilities. The project is scheduled to be completed in FY 1998 when a total of 118 new weather forecast offices will be operational.

The National Institute of Standards and Technology (NIST) facilities are defined as energy intensive due to the nature of the laboratory operations and required environmental conditions. However, NIST activities include efforts to meet energy and water conservation goals. NIST developed an energy conservation plan that includes:

- establishing an energy consumption baseline;
- performing an energy and water survey and audit, including steam distribution analysis;
- recommending and prioritizing projects; and
- identifying potential energy savings performance contract projects.

NIST is currently involved in a long term capital improvement plan that includes construction of the

Advanced Chemical Sciences Laboratory. Energy efficient building systems and components, such as high efficiency lighting and an energy-reclaiming heat recovery loop, were incorporated in the building design. NIST also continues to improve the energy efficiency performance of its campus through initiatives such as the addition of the variable speed pumping system.

The Census Bureau's Charlotte Computer Center in North Carolina is also defined as an energy-intensive facility. At the Jeffersonville Federal Center in Indiana, the Bureau of Census worked with Public Service of Indiana to conduct a facility energy audit and numerous energy saving projects have been completed. Other proposed projects included:

- variable speed drives for air-conditioning;
- roof deck replacement with additional insulation;
- HVAC and lighting improvements;
- expansion of the energy management control system; and
- installation of a new energy-efficient boiler.

Water Conservation
In FY 1996, NOAA's Northwest Fisheries Science Center in Seattle continued to implement a water conservation project lowering energy costs and saving between 300,000 and 500,000 gallons per day. Agency funds were leveraged with funds from DOE's Federal Energy Efficiency Fund grant program and the Seattle City utility rebate program.

Training and Awareness
Commerce facility managers have attended DOE training and workshops to keep abreast of Federal energy requirements and new energy conservation technologies and methodologies. A sampling of courses attended by Commerce personnel include:

- Energy Savings Performance Contracting,
- Designing Low Energy Buildings,
- Facility Energy Decision Screening,
- Federal Relighting Initiative, and
- Energy Efficient Buildings: Complying with ASHRAE Standard 90.1.

The Commerce Department cosponsored the World Energy and Environmental Congress/Environmental Technology Conference (WEEC/ETC) hosted by the Association of Energy Engineers.

Commerce worked with GSA and other Federal agencies to plan The Energy and Environmental Management Conference of 1996 (TEEM '96). The conference addressed issues and concerns of Federal, state and local government managers. TEEM '96 is cosponsored by the Council On Energy Efficiency Commerce and Trade (COEECT). With assistance from the Commerce Department, COEECT developed conference programs of interest for participants from countries outside the United States.

Funding
Commerce has leveraged its funding for energy efficiency projects with resources available from GSA's Federal Building Fund, the Federal Energy Management Program's SAVEnergy audit program and Federal Energy Efficiency Fund program, and utility company rebates.

Demand Side Management
The National Weather Service Headquarters received a utility rebate of $60,000 in conjunction with a lighting retrofit.

Energy Savings Performance Contracts
Commerce is working with GSA and DOE to develop an energy service agreement with the Potomac Electric Power Company to help fund lighting and chiller retrofits for the Headquarters, Herbert Hoover Building. NOAA's Western Regional Center in Seattle, Washington is also working with DOE to explore using the Western Region ESPC to conduct energy and water audits of the Center.

Vehicles
The goal of the Commerce Department is to participate in the GSA alternative fuel vehicle program by utilizing these vehicles as they become available, continue program oversight and evaluation, and work with DOE on vehicle energy conservation planning and guidance. Commerce will continue to acquire the minimum capacity/performance vehicle that will satisfy mission requirements in consideration of safety, economy, and efficiency.

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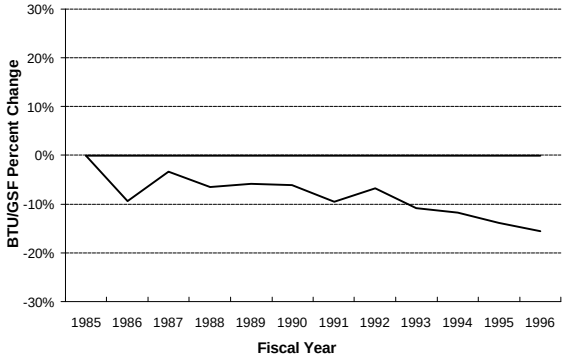
3. DEPARTMENT OF DEFENSE (DOD)

Energy Efficiency Performance and Implementation Strategies

In FY 1996, the Department of Defense reported a decrease in its buildings and facilities energy of 15.5 percent in Btu per gross square foot compared to FY 1985.

DOD Performance Toward Buildings Energy Reduction Goals



Each component of the Defense Department has the responsibility for developing and implementing its own plan for meeting the mandated energy requirements.

The implementation strategy of the U.S. Army is to give the major Army Commands and installations the flexibility to run their own individual energy programs. The general objectives of the Army are to improve energy efficiency and eliminate energy waste by investing in energy efficient technologies, update architectural and engineering instructions and design specifications, maintain an aggressive energy awareness program, and use energy savings performance contracts and utility-sponsored demand side management incentives to leverage energy efficiency investment.

The Navy's Energy Program is reviewed and approved annually by the Shore Facility Energy Coordinating Council which is composed of all major Navy Commands. The Navy's shore facilities energy strategy includes identifying and funding energy efficiency projects, in-house energy manager training, and an effective energy awareness program that is designed to promote the design, construction, operation, and maintenance of energy consuming systems in an efficient manner. In FY 1996, the energy program focussed on lighting projects, boiler plant modifications, energy recovery systems, HVAC, water conservation, electricity use reduction, steam and condensate system modernization, renewable energy, and controls.

The Air Force uses a decentralized approach to implement energy conservation requirements. The Headquarters issues general policy statements to advise Major Commands (MAJCOMs) of requirements. MAJCOMs work through energy steering groups to emphasize energy programs and are expected to develop their own plans and take necessary actions to achieve the goals within their Commands. MAJCOMs encourage their bases to develop individual plans and work through their base level energy steering groups.

The Air Force is developing a fixed-price, indefinite delivery, indefinite quantity contract for its Propane Air Mixing Plant Emergency Reserve Systems that will provide back-up fuel for natural gas systems. The contract will permit bases to discontinue firm natural gas service and will yield a great environmental benefit by enabling an installation to reevaluate the need for underground fuel oil tanks. The contract, once awarded, will be available to any Air Force installation in the continental United States.

Efforts of the Defense Logistics Agency focus on identifying, evaluating, and pursuing energy conservation as a cost reducing opportunity that is particularly valuable for Defense Base Operation Fund (DBOF) installations. Testing is being performed on energy-saving products such as lubricant additives and solar tracking skylights.

The Defense Commissary Agency's (DeCA) energy plan centers on policy directives, energy audits to identify and correct O&M problems, and education through seminars, newsletters, and quarterly corporate videos. The majority of DeCA's facilities are commissaries, which are classified as industrial facilities.

The National Security Agency(NSA)/Central Security Service (CSS) achieved a 23.7 percent reduction in its facilities in FY 1996 compared to FY 1985 through the use of energy efficient construction as areas were renovated.

For the Washington Headquarters, the complete renovation of the Pentagon, including the construction of a new energy-efficient heating and refrigeration plant, will be the primary initiative to improve energy efficiency and achieve the energy goal. The renovation is expected to cost approximately $1.1 billion and be completed in FY 2006. Various energy-efficient technologies have been included in the renovation plans, such as a new energy management and control system which uses direct digital controls for heating, ventilation and air conditioning (HVAC) units, variable air volume boxes

with variable frequency drives, a high voltage supervisory control and data system, and efficient transformers, motors, light fixtures, and lighting controls.

Improved operations and maintenance (O&M) activities are a critical element in the DOD energy management program. The Army program stresses improved O&M of utility systems while emphasizing a privatization effort of major utility systems where cost-effective. The Navy is pursuing an aggressive campaign to heighten energy awareness and increase the training of all design, installation, operation, supply, and maintenance personnel. Examples of operational enhancements throughout the Air Force include customer feedback to establish and manage setback times and temperatures, EMCS to control operating hours, metering to identify large energy users, rescheduling work loads, establishment of no heat/no cool periods, and holiday shutdowns. The Facilities Control Center of NSA/CSS strives to increase energy efficiency by adjusting operating times and temperature settings and has published guidance to ensure that energy-efficient equipment is being purchased and that motors and other equipment are being properly maintained.

Surveys and Audits

DOD facilities are encouraged to use auditing programs available from their local utility company where applicable.

The Army established a contract in FY 1995 to help installations identify and implement quick-return energy conservation projects. Work covered by the contract includes comprehensive audits of building lighting systems and electric motors, survey and identification of steam trap operating conditions, upgrade and replacement of lighting fixtures, and installation of premium efficiency electric motors. The Army has conducted lighting audits in more than 15 million square feet of facilities and has identified $5 million in potential lighting projects. Delivery orders were issued to complete light retrofits at 10 installations at a cost of $1.4 million.

The Navy audited 46 activities in FY 1996, identifying more than $76.4 million of cost-effective energy projects. By the end of FY 1996, the Navy has audited 116.5 million square feet equaling 30 percent of Navy shore square footage, excluding housing. The Navy completed 23 energy projects in FY 1996, avoiding energy costs of more than $4.8 million annually.

Each Air Force MAJCOM has developed its own plan to accomplish energy audits with several MAJCOMs establishing in-house survey teams to accomplish energy surveys. The Army Construction Engineering Research Laboratory performed REEP software analysis for the Air Force on all major Air Force installations within the continental United States. More than $190 million of energy projects were identified or revalidated based on surveys accomplished in FY 1996. These projects, if implemented, would save more than 3.9 trillion Btu and avoid energy costs of more than $57.9 million annually.

At NSA, comprehensive energy and water audits have been completed on 96 percent of Government-owned space. The remaining four percent consists of a recently purchased building that was totally renovated with energy-smart features before being occupied.

DeCA conducted eight audits and initiated three construction projects during FY 1996. Audits have been completed for approximately 24 percent of DeCA's total square footage. Audit locations were selected based on commissary size, energy use, and current new construction or alteration status.

Training

The Army trained 120 energy personnel in FY 1996. The Army Center for Public Works sponsored two one-week courses and the Army Logistics Integration Agency presented a 34-hour course for energy managers in the Army Reserve Command.

The Navy trained almost 400 energy managers and facilities personnel in areas specified in EPACT. The Navy also conducted their in-house energy management course in four regions. The course covered Navy policies and instructions, energy data reporting and measurement, information on energy systems and technologies, project development, and funding opportunities including alternative financing such as demand side management and ESPC.

The Air Force Institute of Technology (AFIT) Civil Engineering School at Wright-Patterson Air Force Base in Ohio is the primary source of energy training for the Air Force. Twice a year, AFIT offers a one-week Energy Management training course. Several other energy training opportunities were offered in FY 1996 including regional workshops on lighting, direct digital controls, energy savings performance contracting, and water conservation.

DeCA pursues several activities to ensure that energy managers are appropriately trained. In FY 1996, approximately 160 Commissary Officers and Managers received a one-hour Commissary Officer energy/ environmental awareness briefing as a part of the Commissary Officer Basic and Advanced Courses.

Funding
The Defense Department funded $112.5 million in expenditures for energy efficiency projects in FY 1996. Annual savings anticipated from this investment are 2.6 trillion Btu and $23.4 million. Expected funding for FY 1997 is $50 million.

Energy Savings Performance Contracts
The military services coordinate their energy savings performance contracting activities through the DOD Tri-Service ESPC Steering Group and with other Federal agencies through DOE's Federal Energy Management Program.

The Army has awarded seven ESP contracts since FY 1988 with anticipated average annual savings of $9.4 million. Example projects include:

- Replacement of a steam-fueled absorption chiller with an electrical chiller at the Corpus Christi Army Depot, Texas in FY 1988;
- Replacement of air conditioner units, EMCS controls, a lighting retrofit, shower head replacement, water heater insulation, and other energy conservation measures at Aliamanu Housing Reservation, Fort Shafter, Hawaii in FY 1991;
- Upgrade and expansion of a propane-air mixing plant to provide backup capability for the natural gas system at Fort Stewart, Georgia in FY 1992;
- Installation of a propane-air mixing plant to supplement the natural gas system at Fort McPherson/Gillem, Georgia in FY 1992; and
- Installation of closed-loop ground-source heat pumps at 4,003 family housing units at Fort Polk Louisiana awarded in FY 1994.

The Navy has four active ESP contracts in FY 1996 and expects to award an ESPC at the Naval Surface Warfare Center in Crane, Indiana in FY 1997. The ESPC will install energy management control systems and direct digital controls and will replace and improve the boiler system. The Navy's active ESPCs include:

- Lighting retrofits and an EMCS for facility air handlers, boilers, and chillers at the Naval Training Center at Great Lakes, Illinois;
- Lighting retrofits in 52 administrative and community buildings the Naval Air Warfare Center at Patuxent River, Maryland;
- Lighting retrofits for nine commissaries in Southern California; and
- Lighting retrofits, cooling tower fan controls, and replacing motors and steam traps at Naval Ordnance Center in Indian Head, Maryland.

The Air Force has developed Request for Qualification procedures for ESPCs and successfully awarded two delivery order type ESPCs that are available to four Air Force installations. The Air Force is investigating approximately 30 others, including:

- Preparation of a follow-on ESPC at Randolph AFB that will be a multi-base contract for Kelly, Brooks, Randolph, Lackland, Laughlin, Goodfellow Air Force Bases, and Wilford Hall Medical Center;
- Evaluations completed for base-wide ESPCs at Robins and Wright-Patterson Air Force Bases with the contracts under development at both;
- Issue of an RFP for a base-wide ESPC at Kirtland AFB in New Mexico with contract award expected in FY 1997; and
- Contractor evaluations have been completed and contract award is expected shortly for an unsolicited ESPC received at Nellis AFB in Nevada.

DeCA currently has one energy savings performance contract for eight locations in San Diego, California. The administration of the ESPC was transferred to DeCA from the Navy in 1992. The contractor installed energy controls and reduced both the number of light fixtures and the wattage of the fixtures achieving gross annual savings of more than $153,500.

Demand Side Management
The Army received $2,736,000 in utility incentives in FY 1996. Annual savings anticipated from DSM activities were $2,532,000. During FY 1996, the Army held meetings with its Major Commands and installations to expedite DSM program implementation. Fort Lewis and Tacoma Public Utilities continued to install equipment under a customized DSM program. DSM opportunities are currently under discussion at Forts Irwin, Bliss and Hood.

The Engineering Field Divisions of Naval Facilities Engineering Command negotiate and award DSM contracts for the Navy. The $5 million in utility company incentives received by the Navy helps offset the $18 million awarded for lighting retrofits during FY 1994 and FY 1995, which continue to be implemented in FY 1996. The Navy's DSM initiatives include:

- A basic ordering agreement (BOA) with San Diego Gas & Electric (SDG&E) in which SDG&E finances the energy conservation measures and the

costs are paid back through the monthly utility bills. Partnership continued with SDG&E in FY 1996 with the implementation of the Greater San Diego Lighting Retrofit Program.

- A contract with ENVEST, a subsidiary of Southern California Edison Company, for accomplishment of comprehensive energy audits and implementation of energy and water conservation projects. The contract currently covers seven major Navy and Marine Corps installations in the Southern California area.

- A BOA with Commonwealth Edison to provide facility audits and energy conservation project implementation for the activities at Great Lakes, near Chicago.

- An agreement with the Jacksonville Electric Authority, a municipal utility, to provide a full range of project identification and financing services.

The Navy is continuing discussions with various other utility companies to stimulate their interest in developing DSM programs including Baltimore Gas and Electric Company, Potomac Electric Power Co., Arizona Public Service Company, and Puget Power. The Navy is developing an Interagency Agreement with Bonneville Power Administration (BPA) to participate in BPA's new DSM initiatives.

The Air Force has DSM projects at numerous Air Force bases including:

- An umbrella DSM agreement with ENVEST for audits, lighting retrofits, and submetering at Edwards AFB.

- A DSM agreement between Little Rock AFB and Arkansas Power and Light in which a $121,000 lighting retrofit was completed—saving $106,000 in the first year.

- Vandenberg AFB and Pacific Gas and Electric (PG&E) have a pilot DSM agreement in place. PG&E has completed a $174,000 retrofit lighting project paying $150,000 of the cost. Expected savings are $25,000 per year.

- Boston Edison completed audits and implemented energy efficiency modifications in 26 buildings at Hanscom AFB providing all of the $400,000 project cost and saving an estimated $120,000 per year.

- Sacramento Municipal Utility District (SMUD) completed installation of approximately $100,000 worth of lighting retrofits at McClellan AFB. SMUD provided turn-key installation, paid 35 percent of the total cost, and financed the remaining cost.

- A DSM agreement at Mountain Home AFB with Idaho Power and Light (IP&L) that used IP&L financing and DOD funds to complete design and installation of a photovoltaic system to power a remote radar site.

- In Florida, Patrick AFB and Florida Power and Light (FP&L) have a DSM agreement in place which will implement $250,000 in lighting retrofits, with the project financed by FP&L and rebates.

- Grand Forks AFB and Northern States Power Company have a DSM agreement to replace 1,899 electric water heaters with natural gas-fired water heaters. The estimated savings are $400,000 per year.

Additional Air Force installations are working on DSM agreements including Nellis AFB and Nevada Power Company, Davis-Monthan AFB and Tucson Electric, Langley AFB and Virginia Power, Keesler AFB and Mississippi Power Company, and Keesler AFB and Entex Natural Gas.

Vehicles

The Department of Defense now has over 10,000 alternative fueled vehicles in use, under contract, or funded, including AFVs leased from GSA. Substantial numbers of vehicles using all major alternative fuels are represented in the Department fleets. In addition to its program to procure increasing numbers of alternative fueled vehicles, the Department has an ambitious program to provide the refueling stations needed to support its vehicles. Where available, the Department's policy is to use existing commercial refueling infrastructure. Defense Components now have more than 57 natural gas refueling stations operating or under construction on their installations.

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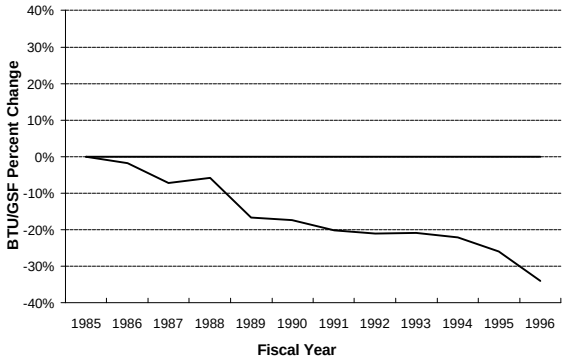
4. DEPARTMENT OF ENERGY (DOE)

Energy Efficiency Performance and Implementation Strategies

During FY 1996, the Department of Energy reported a 33.9 percent reduction in buildings consumption in Btu per gross square foot compared to FY 1985. This reduction is partially due to reduced missions and stand-down activities at several of the DOE sites. Efforts are ongoing to consolidate operations and minimize energy use in vacated buildings.

DOE Performance Toward Buildings Energy Reduction Goals



In FY 1996, the DOE In-house Energy Management Program which has championed and funded most of the energy management activities within the Department since FY 1977 was eliminated by Congress. Energy management activities are being integrated into DOE program operations with designated program offices completing the operational improvements and energy efficient retrofit projects. With the loss of Congressional funding, obtaining alternate private sector financing for energy efficiency projects is considered vital to continued energy cost savings.

DOE is in the process of developing performance agreements with its field elements for achieving these cost savings. Minimum objectives for each DOE field element include:

- Managing energy program initiatives consistent with the Department's comprehensive energy management plan;
- Reducing annual building energy use;
- Completing previously-funded energy management retrofit projects; and
- Developing at least one alternative financed project.

In response to Executive Order 12902 and the Department's Energy Management Plan, DOE sites identified and began implementing the new energy performance requirements, including conducting comprehensive facility audits. The second phase of the energy audit of 31 buildings at the Pantex Plant identified total life-cycle energy savings of $4.3 million with a 6.3 year payback. Projects identified by the audits will be funded through the private sector using energy savings performance contracting or utility incentives.

FY 1996 energy efficiency projects included:

- Replacing all fluorescent lighting fixtures in offices and corridors at the DOE Headquarters Germantown Building with T-8 lamps, electronic ballasts and parabolic louvers, saving an estimated 2.5 million kWh and $176,000 annually.
- Renovating the building space and replacing building chillers and windows at the Bettis Atomic Power Laboratory, saving more than 30 billion Btu per year.
- Implementing heating, ventilation, and air-conditioning control modifications at Building 9995 at the Y-12 Plant with projected annual cost savings of $391,000.
- Completing three lighting projects at the K-25 Site savings more than $100,000 annually.
- Investing $780,000 to improve the helium refrigeration efficiency in Building 203 at the Argonne National Laboratory-East which will save $155,800 per year.
- Installing a 3.2 million gallon chilled water storage tank at Brookhaven National Laboratory to reduce peak demand which is projected to save $600,000 per year in electricity costs.
- Implementing eight retrofit projects at the Lawrence Berkeley National Laboratory including site-wide lighting upgrades and building automation, and a technology demonstration in Building 90, collectively saving an estimated $873,000 annually.

- Upgrading 43 administrative buildings at the Savannah River Site at a cost of $1 million realizing annual savings of $241,000.

- Installing nine photovoltaic arrays to provide power for air sampling systems at remote areas of the Nevada Test Site saving an estimated $139,000 and upgrading the water infrastructure by replacing the old, leaking distribution piping saving an estimated $228,000 annually.

Operations and Maintenance
Operations and maintenance initiatives used to increase energy efficiency included efficient operation of buildings, improved preventive maintenance, improved maintenance techniques for maximum energy efficiency, and improved energy training for personnel. Other specific operations and maintenance efficiency measures include:

- Thermograph techniques to locate "hot spots" in energy systems;

- HVAC maintenance programs including recalibration of thermostats and humidstats, cleaning of coils and louvers, and drip pan replacements;

- Set back and shutdown of laboratory fumehood exhaust systems;

- Direct digital control systems to monitor and control HVAC equipment;

- Steam-trap inspection and replacement program;

- Annual boiler tune-up procedures;

- Inspection procedures for ensuring proper operation of controls on energy-using equipment;

- Established maintenance procedures for the inspection of energy aspects of dynamic equipment;

- Monitoring performance data for boilers and chiller plants and adjusting for peak performance; and

- Reviewing building modification plans for energy efficiency features.

Energy Awareness and Outreach
During FY 1996, many DOE sites published reminders in their newsletters regarding turning off lights, air conditioners, fans, heaters, shop equipment, office machines, including computers, when not needed and particularly at the end of each work day. Some sites presented awareness activities on the in-plant television system.

Several DOE sites participated as downlink sites for the DOE TeleFEMP educational broadcasts increasing awareness of energy savings performance contracting and utility partnerships.

The DOE Nevada Operations Office (NV) held its third Annual Energy Fair. NV also held a student solar car competition at the University of Nevada Las Vegas to determine the fastest prize winning car. Teams of students were responsible for the design and construction of a complete solar powered car.

Funding
The Department of Energy did not receive any direct appropriations for internal energy management in FY 1996. However, operation, maintenance, and construction activities will incorporate energy efficiency, water conservation, and renewable energy measures as authorized and as appropriate. The Department will also implement projects in future years through alternate financing mechanisms such as the Pilot Energy Services and Project Funding Program proposed between Bonneville Power Administration (BPA) and Richland Operations Office. This pilot program would provide funding for quick payback projects and if successful, would be proposed at other DOE sites.

Energy Savings Performance Contracts
The Department did not award any ESPCs in FY 1996, but expects to award two in FY 1997. The Richland Operations Office Hanford Site is in the final stage of negotiating an ESPC which will be awarded in FY 1997. The ESPC will identify and implement all cost-effective energy conservation measures for the steam systems in the 200 and 300 areas. This ESPC is expected to save DOE about $108 million over 25 years.

Demand Side-Management
DOE sites continue to participate in utility company demand side management programs.

The Strategic Petroleum Reserve, Bryan Mound site completed a metering retrofit which allows the site to process loads under provisions of a "10 minute notice" interruptible tariff from their local utility. This metering system makes it possible to segregate the "hotel" loads from the "process" loads and permits the site to be served by two electrical tariffs for a savings of about $2 million over the next five years.

A project at the Hanford Site qualified for a $7,405 energy rebate from the BPA. This project, along with five other completed projects, have a savings of $210,000

annually and 4.6 year payback. The 331 lobby relighting and 325 second floor renovation projects championed by the Pacific Northwest National Laboratory earned rebates of $10,000 from BPA.

Brookhaven National Laboratory and DOE negotiated a contract modification with New York Power Authority to provide an additional 35,000 kW of low-cost electric power, bringing the total allocation to 76,910 kW by FY 2000. The allocations are phased to coincide with site electric demand increases resulting from the start-up of the Relativistic Heavy Ion Collider project. The contract modification will save DOE an estimated $7.8 million through FY 2000.

Partnership Initiatives/Team Franchising Activities
The Applications Team at Lawrence Berkeley National Laboratory (LBNL) supported the Federal Energy Management Program to speed the deployment of under-utilized technologies and financing vehicles, support replicable projects, and improve communications between researchers, engineers, and field personnel.

One of the five franchising projects supported in FY 1996 was the development of the *North American Energy Measurement and Verification Protocol (NEMVP)* and the *Federal Energy Management Program Measurement & Verification Guidelines*. These documents provide procedures and guidelines for quantifying the savings resulting from the installation of energy efficiency measures under an energy savings performance contract. The documents will facilitate alternative financing of energy efficiency improvements in the Federal sector as well as other sectors of the economy.

The energy management staff at the Oak Ridge Operations Office's Y-12 Plant worked with the Oak Ridge Centers for Manufacturing Technology to provide energy management services, chlorofluorocarbon (CFC) phase-out technical support, and indoor air quality analysis to other government facilities including the DOE Boston and Philadelphia Regional Support Offices.

Lawrence Livermore National Laboratory continued their franchising program to provide energy management services to other Federal sites including the DOE Albuquerque Operations Office, Los Alamos National Laboratory, and the Waste Isolation Pilot Plant.

Federal Showcase Facilities
The Department of Energy has thirteen showcase facilities demonstrating energy efficient technologies such as high efficiency lighting, motion sensors, high efficiency heat pumps, daylighting, xeriscaping, variable speed motors, and bypass multizone air handlers.

At the Nevada Operations Office's North Las Vegas Facility and Nevada Test Site, four buildings were selected as showcase facilities due to their historical significance and large number of non-Federal visitors.

The Oak Ridge Operations Office Y-12 Plant showcases several low-cost projects demonstrating innovative energy efficiency products including electric and steam-to-water on-demand water heaters, liquid overfeed units on direct expansion air conditioners, a desuperheat chamber for hot gas by-pass on dehumidification units, retrofits for light emitting diode exit lights, premium efficiency motors, and water conserving shower heads, toilets and faucets.

Vehicles
DOE has an ongoing program to improve vehicle efficiency, including acquiring alternative fueled vehicles, downsizing vehicles when appropriate, upgrading preventive maintenance programs, improving maintenance techniques such as increased emission testing, expanding waste minimization programs to reduce vehicle waste streams, implementing driver awareness training, and providing employee outreach.

Fleet vehicles at a number of DOE sites have been converted from gasoline to methanol or are dual fuel vehicles. Liquefied petroleum gas, liquefied natural gas, compressed natural gas, electric vehicles, and biodiesel gas are some of the other alternate fuels currently in use.

At the DOE Nevada Operations Office 16 vehicles were converted to run on compressed natural gas. In addition to reducing environmental pollution and required maintenance on the engine, the conversion will save an estimated $1,015.

In the area of vehicle fuel efficiency outreach, most DOE sites have an ongoing employee commuter program to encourage gasoline conservation by employees. These programs promote the use of ridesharing and/or mass transit services.

Environmental Benefits
During FY 1996, DOE continued to focus on reduction of chlorofluorocarbons through projects to replace CFC chillers with new higher efficiency, non-CFC chillers and refrigerant recovery programs. Other measures include fluorescent lamp recycling, procuring recycled goods and products such as printer/copier toner cartridges and paper products, reduction of power plant emissions in California, reduction of tailpipe emissions through the use of compressed natural gas fueled vehicles, and recycling of aluminum beverage cans, batteries, cardboard, and paper products. Soy-based inks, which are

environmentally friendly, are also used in some DOE print plants.

During FY 1996, the Mound Site completed construction on a project that eliminated all remaining PCB-containing electrical transformers from the site and the Mound's aging fuel oil storage facilities were replaced with a safer and environmental code-compliant structure.

The Stanford Linear Accelerator Center completed the hot water boiler and pumping system upgrade which resulted in a substantial reduction in the emission of nitrous oxides and carbon monoxide and meets the boiler emission control requirements of the Bay Area Quality Management District.

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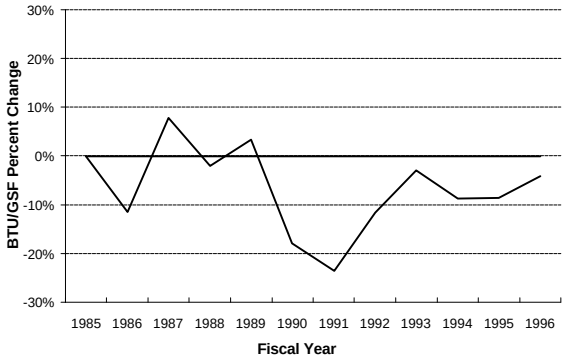
5. DEPARTMENT OF HEALTH AND HUMAN SERVICES (HHS)

Energy Efficiency Performance and Implementation Strategies

The Department of Health and Human Services reported a 4.1 percent reduction in buildings consumption in Btu per gross square foot in FY 1996 when compared to FY 1985.

HHS Performance Toward Buildings Energy Reduction Goals



The FY 1996 Health and Human Services energy management program concentrated on completing comprehensive energy audits, developing energy awareness among all HHS employees, disseminating energy information to all operating divisions (OPDIVs), proper reporting of energy consumption and program information, and consolidating facility square footage into more efficient operating spaces.

During FY 1996, the Social Security Administration became independent from HHS, and began reporting its energy consumption and costs separately.

The Office of the Secretary (OS) has developed a multi-year energy management program. Six projects were implemented in FY 1996, including an occupancy sensor project, security room renovation, mechanical rooms lighting retrofit, air balancing, steam station upgrade, and soffit renovation.

The National Institutes of Health (NIH) upgraded its central chiller plant, which will save more than $700,000 annually on energy costs, and received a $900,000 Potomac Electric Power Company utility rebate. NIH won first place in the Industrial Energy Conservation category for the chiller project at ENCOMP, an energy competition sponsored by energy and utility organizations.

In FY 1996, the Center for Disease Control (CDC) installed high efficiency motors and variable speed drives on HVAC fans in two facilities. An additional $1.4 million is planned for HVAC upgrades in FY 1997.

The Health Resources and Services Administration (HRSA) has implemented energy efficiency projects such as HVAC upgrades and lighting retrofits at the Hanasen Disease Center during the past two years and began construction on two chiller projects in FY 1996.

The Health Care Financing Administration (HCFA) has consolidated its five delegated facilities into a new leased headquarters facility.

The Program Support Center (PSC) is continuing to address energy efficient projects with the lessor of the Parklawn Building. The PSC energy staff are focusing efforts on employee awareness programs and projects that can be completed without cost to the lessor. The owner of the Parklawn building plans to replace the chillers in FY 1997. This project will receive a $218,000 utility rebate and will reduce electricity usage by 3 percent, saving $55,000 annually.

The Food and Drug Administration (FDA) is developing and implementing an energy program that will emphasize energy audits throughout FDA facilities and facility manager education of the energy reduction goals and opportunities for energy and water conservation.

The Indian Health Service (IHS) is working with the National Renewable Energy Laboratories and the HHS Energy Office to refurbish and recommission an existing solar collector field at the White River hospital in Arizona. This solar collector field would provide hot water that is currently provided by diesel boilers.

Training

HHS energy and facility personnel receive energy management training based on scheduling opportunities and available funding. Four CDC energy management personnel have received DOE/FEMP operations and maintenance training and Department of Defense energy management training. Seven HRSA energy management personnel attended seminars on water/energy management, indoor air quality management, facility refrigerant management, Healthcare Initiative information, and voltage variations effects on customers and mitigation solutions. Two employees of the OS Division of Building Management received training in Facility Energy Use Assessment.

The IHS Energy Coordinator has developed an energy management course for the IHS area engineers and facility managers and has offered this course to all HHS personnel. The course covers the following topics:

- Overview of Codes and Standards,
- Economics,
- Energy Audits/Instrumentation,
- Electrical System Utilization,
- Mechanical and HVAC Systems,
- Utility and Process Systems Utilization,
- Cogeneration,
- Procurement of Fuel,
- Energy Management Systems,
- Control Strategies,
- Thermal Energy Storage,
- Lighting,
- Boiler and Incineration Plants, and
- Maintenance Programs.

Sixty engineers, managers, and technicians have attended the course. Nine engineers and technicians have passed an exam administered by the Association of Energy Engineers for energy manager certification. The Bemidji Area facilities engineer attended the University of Wisconsin's Energy Auditing Basics. The Portland Area energy manager received training in HVAC Plant Improvement.

Funding
HHS invested $2.7 million of direct agency expenditures in energy and water efficiency projects during FY 1996, an 18 percent increase from FY 1995 expenditures.

Energy Savings Performance Contracts
The HHS Energy Office continues to promote the benefits of ESPCs to their facilities. Several operating divisions are considering ESPCs to implement energy efficiency projects. Specifically, the NIH Frederick Cancer Research and Development Center expects to have an ESPC in place in FY 1997 and CDC is working with an energy service company to develop an ESPC contract to perform lighting retrofits and other energy efficiency projects.

Demand Side Management
In FY 1996, NIH received a $900,000 utility rebate for its central chiller upgrade project and the CDC received a $21,000 utility rebate for installing high efficiency motors and variable speed drives. The Parklawn building will receive a $218,000 utility rebate in FY 1997 for replacing the chillers.

Water Conservation
The CDC is implementing a water conservation project that is expected to save approximately 11.2 million gallons of water annually. The project involves the installation of a recirculating cooling tower for 27 air-conditioning units serving laboratories, a computer room, and a copy room.

Environmental Activities
The IHS Oklahoma Area has installed high efficiency purge units on their centrifugal chillers that utilize R-11. In FY 1997, the Area will perform a study to determine the most economical chiller replacement while considering the environmental impact. The Area also performed a lighting retrofit project which involved the removal of magnetic ballasts containing PCBs. Extra funding was used to incinerate these PCB ballasts in order to prevent potential landfill disposal problems.

The IHS Anadarko facility will incorporate aspects from the Presidential Memorandum on Environmentally Beneficial Landscaping Practices around the new entrance canopies, such as planting with deciduous trees and native plants.

Other IHS facilities have either instituted CFC reduction programs for HVAC equipment or have completely eliminated the use of CFCs.

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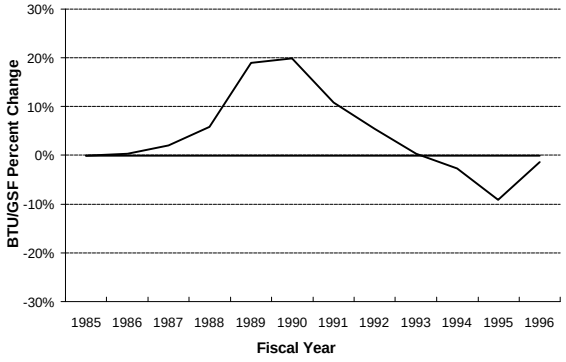
6. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT (HUD)

Energy Efficiency Performance and Implementation Strategies

During FY 1996, the Department of Housing and Urban Development reported a 1.4 percent decrease in buildings consumption in Btu per gross square foot compared to FY 1985.

HUD Performance Toward Buildings Energy Reduction Goals



HUD's energy strategy includes continuously reviewing operations to identify opportunities for energy savings, aggressively pursuing identified energy conservation measures, and purchasing of energy-efficient equipment, such as Energy Star computers.

In FY 1996, HUD undertook the following energy conservation measures at its Headquarters Building:

- Initiated the chiller replacement project at the Headquarters Building in Washington, DC which will be completed in FY 1997;
- Continued to participate in Potomac Electric Power Company's (PEPCO) Electrical Load Curtailment Program.

The chiller project, awarded through the General Services Administration, will replace existing chillers with energy efficient, non-CFC using chillers.

HUD uses DOE's Facility Energy Decision Screening (FEDS) and Building Life-Cycle Costing (BLCC) software to analyze energy data and develop cost-effective energy efficiency projects. With the implementation of the following initiatives in the future, HUD expects to meet or exceed the mandated energy efficiency goals:

- Upgrading interior and exterior lighting, and
- Installation of on/off controls for window fan coil units.

At the urging of DOE's National Renewable Energy Laboratory, HUD has nominated its Headquarters Building to be an energy Showcase facility. Under this initiative, HUD plans to pursue solar and renewable energy projects through DOE and the National Renewable Energy Laboratory.

Training

Several key HUD personnel involved in energy conservation have received Energy Savings Performance Contracting training through DOE. HUD's energy coordinators have also received training in life-cycle cost analysis, the Federal Relighting Initiative, Facility Energy Decision Screening, A Simplified Energy Analysis Method (ASEAM), and energy rate analysis.

Funding

HUD submits potential energy conservation measures to GSA for funding through their special energy fund for buildings which has been delegated to agency control. HUD's Office of Procurement and Contracts has accelerated the procurement process to award projects within the fiscal year they are proposed.

When reviewing a project for submittal to GSA for funding, HUD uses Building Life-Cycle Cost software to determine life-cycle cost effectiveness of various alternatives.

Demand Side Management

Each year since 1985, HUD has participated in PEPCO's load curtailment program. In addition, HUD implemented and operates its own load curtailment to not exceed a specified demand level.

HUD also participates in PEPCO's rebate program and will receive rebates for the high pressure sodium lights installed at the Headquarters Building.

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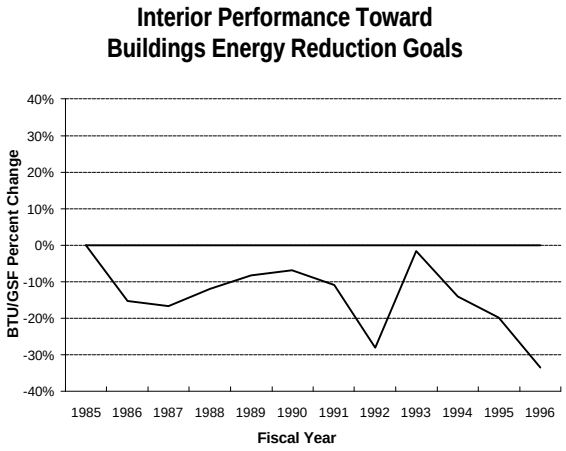
7. DEPARTMENT OF THE INTERIOR (DOI)

Energy Efficiency Performance and Implementation Strategies

In FY 1996, the Interior Department reported a decrease in energy consumption in buildings of 33.4 percent in Btu per gross square foot compared to FY 1985.



The DOI Energy Management Plan for Buildings and Facilities, revised in June 1995 to meet requirements of EPACT and Executive Order 12902, provides guidance to its Bureaus in establishing and implementing energy management programs. The Bureau of Reclamation recently issued a supplement to their plan and Fish and Wildlife Service updated their manual in FY 1996.

In FY 1996, the U.S. Geological Survey implemented 11 energy and water projects at three sites and confirmed that its new building in Sioux Falls uses 40 percent less energy than comparable facilities completed in FY 1975. The Bureau of Reclamation has completed prioritization surveys for most regions, completed four comprehensive audits, and completed energy and water efficiency projects at more than 30 sites. The water conservation efforts at the Hoover Dam Visitors' Center saved approximately 800,000 gallons of water in FY 1996. The Fish and Wildlife Service nominated 24 sites to receive audits under the DOE/FEMP SAVEnergy Program.

Operations and maintenance (O&M) efforts continued to be aimed at identifying facilities where high costs occur, determining their cause, and pursuing corrective action. O&M procedures have been adopted at many Bureaus, and require that all new or replacement purchases of energy consuming devices be evaluated on energy efficient characteristics.

Maintenance projects are reviewed for their relation to energy conservation measures, and a high priority is placed on those projects that would result in reducing energy consumption.

Training

Energy managers have attended DOE/FEMP-sponsored courses including the workshop on energy savings performance contracting. Several managers have also attended training offered by the General Service Administration, Environmental Protection Agency, the Association of Energy Engineers, and public utilities. Training materials are routinely distributed and energy managers are encouraged to attend as much training as local funding will allow.

Funding

DOI funded $891,000 in retrofit and capital equipment for FY 1996 and estimates funding of $841,000 for FY 1997. DOI funding for energy retrofits and capital improvements come from the Bureaus' operations, maintenance, construction, and rehabilitation funds, while the GSA Building Fund is the primary source of funding for delegated buildings. In FY 1996, the funding needed to implement the identified energy conservation opportunities and retrofit projects far exceeded the available funding.

Energy Savings Performance Contracts

The National Park Service currently has an ESPC in place for lighting at the Statue of Liberty and Ellis Island National Monument. DOI continues to explore other locations where energy saving performance contracts might effectively be implemented. In FY 1996, the Bureau of Reclamation identified three opportunities for ESPCs at Job Corp sites and is working to develop an ESPC with Utah Power and Light to retrofit a lighting system and apply window film. The National Park Service is also working with DOE to use the Regional Super ESPCs.

Demand Side Management

DOI encourages each office to periodically check with their utility to determine if any incentives are being offered. By FY 1996, most Bureaus had successfully implemented DSM strategies based on the "Demand-Side Energy Management Guidelines" developed and distributed by the Fish and Wildlife Service.

The National Park Service and Pacific Gas and Electric Company (PG&E) negotiated an innovative demand-side management contract that pays the Park Service for energy saved. To obtain the rebates, a pre-retrofit and post-retrofit energy audit is performed to identify the savings.

The U.S. Geological Survey consults with servicing utilities at least annually to ensure that each facility has the lowest possible rate schedule. High energy-use systems are scheduled to take advantage of off-peak rates.

During FY 1996, the Bureau of Reclamation received several rebates from PG&E and purchased 500 compact fluorescent lamps at half price as part of a program sponsored by the Sacramento Municipal Utility District.

Vehicles

In FY 1995, Interior had a fleet of about 33,000 vehicles of which approximately 50 percent are DOI-owned, while the rest are leased through GSA. A cornerstone of DOI's efforts to reduce dependency on petroleum in its motor vehicle fleet is the use of cleaner burning alternative fuels.

Currently, DOI has over 350 alternative fuel vehicles (AFVs) in about 25 states at over 75 locations. About 80 percent of DOI's AFVs use an alcohol-based fuel (primarily methanol/gasoline blend) and 15 percent use natural gas and propane gas. Less than 5 percent of the AFVs are powered by electricity or bio-diesel derived from industrial rapeseed, canola, or soybeans.

Interior continues to increase its use and promotion of alternative fuels through a strategy of creating public/private partnerships to share the vehicle, fueling, and infrastructure costs of AFVs and to provide "hands on" support. Working closely with other Federal agencies and industry resulted in the following DOI high-profile cost-sharing partnerships:

- Introducing electric mass transit vehicles at the Patuxent National Wildlife Visitor Center and Yosemite National Park, and other DOI locations;
- Participating in a DOE heavy vehicle demonstration project at several sites;
- Procuring the first electric light duty vehicles in the DOI fleet and other light duty AFVs;
- Participating in short- and long-term demonstrations to test the applications and viability of electric and bio-diesel powered vehicles at DOI facilities;
- Developing a framework to transform the Presidio into multi-modal clean transportation zones as part of the "Greening of the Presidio;" and
- Establishing convenient fueling sites for AFVs.

Energy Efficient Procurement

DOI signed the DOE "Procurement Challenge" in October 1995 and is making every effort within budgetary limitations to implement applicable rules and regulations for the procurement of energy-efficient goods and services. DOI identifies "green" opportunities and employees are encouraged to procure energy-efficient goods and products that are life-cycle cost effective.

In FY 1996, the Director of Fish and Wildlife Service revised Order Number 51 implementing the life-cycle cost effective procurement program for the purchase of environmentally sound, energy-efficient products and services.

The Bureau of Reclamation is purchasing energy saving equipment such as "Energy Star" certified computers and printers and other energy-efficient office equipment. The "Motor Master Program" is being used by most of their maintenance personnel to select the most energy-efficient motors and in some offices all lamp replacement orders are reviewed to ensure that only energy-efficient lights are procured.

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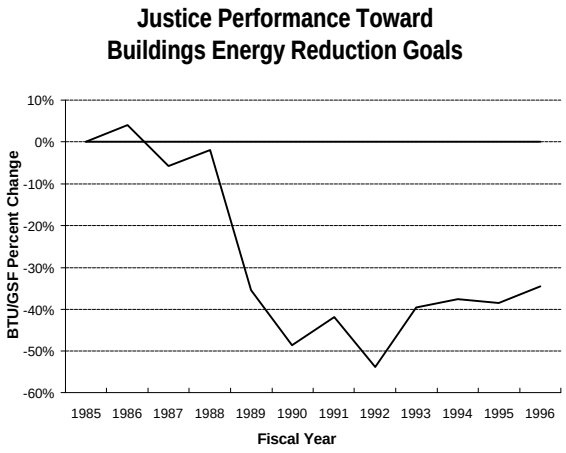
8. DEPARTMENT OF JUSTICE (DOJ)

Energy Efficiency Performance and Implementation Strategies

In FY 1996, the Department of Justice reported a decrease of energy consumption in buildings of 34.4 percent in Btu per gross square foot compared to FY 1985.



The Department of Justice continues to review and update its Energy Conservation Plan. The Department has distributed the requirements established by Executive Order 12902 to its Bureaus. DOJ facilities manuals are also being updated.

As required by Executive Order 12902, energy surveys and comprehensive audits will be conducted until all required Department facilities have been audited. Additionally, a plan will be prepared to ensure that all required facilities receive a comprehensive audit/survey in a 10-year time frame. DOJ will utilize utility companies, General Services Administration mechanisms, DOE audit teams, and private contractors to perform the audits.

In FY 1996, the Bureau of Prisons (BOP) conducted 12 energy audits in a wide variety of institution types and climates. The economic analysis from the audits have been used to justify the request for funding and resulted in the implementation of energy conservation projects.

The Federal Bureau of Investigation (FBI), through GSA, conducted an energy management prioritization and water usage survey at the J. Edgar Hoover Building in Washington, DC. The Main Justice Building will begin its planned modernization in FY 1997. Energy efficiency projects planned include renovations to the HVAC system, building support systems, and water and lighting systems.

The BOP completed the following conservation projects in FY 1996:

- Replacement of the chiller at the Federal Medical Center, Rochester, Minnesota which will save more than 15,000 kilowatt hours annually;
- HVAC system upgrade at the Federal Correctional Institution, Terminal Island, California, with technical assistance provided by the Los Angeles Department of Water and Power;
- Upgraded the heating system at the Federal Correctional Institution, Oxford, Wisconsin by replacing nine boilers with three energy-efficient boilers, and replacement of the boilers and upgrading the control system at the Federal Correctional Institution, Miami, Florida;
- Installation of an energy management system and upgrade of lighting fixtures, and replacement of the existing HVAC system at the Federal Prison Camp, Yankton, South Dakota;
- Retrofit of lighting with T-8 lamp and magnetic ballasts at the U.S. Penitentiary, Leavenworth, Kansas; the Federal Correctional Institution, Loretta, Pennsylvania; and the Federal Medical Center in Lexington, Kentucky, saving a combined total of 1.42 million kWh annually;
- Upgrading the domestic hot water heaters at the Metropolitan Detention Center, Los Angeles, California; and
- Replacement of 610 vintage 1930s windows at the Federal Correctional Institution, Milan, Michigan.

The FBI continued the following retrofit projects in FY 1996:

- Installed occupancy sensors to control lighting;
- Replaced large, oversized, or burned out motors with energy-efficient motors;
- Installed T-8 lamps, electronic ballasts, and power reducers for the lighting in the hallways; and
- Replaced old ballasts with high efficiency ballasts and electronic switches.

The Justice Department operations and maintenance (O&M) procedures are based on a computer software package detailing preventive maintenance actions designed to ensure maximum efficiency of equipment/building system operation.

Training
In FY 1996, approximately 25 personnel from DOJ attended low- or no-cost courses sponsored by DOE's Federal Energy Management Program and GSA. In addition, 25 BOP personnel received training on energy conservation through the bi-annual Bureau of Prisons Facilities Management training course.

Funding
In FY 1996, more than $1.6 million was directly invested on facility energy efficiency improvements by DOJ. The Department funds low- and no-cost energy conservation projects when and where possible. Funding requests for energy conservation retrofits and capital equipment requirements are considered on a case-by-case basis. Projects are prioritized in order of emergency, life and fire safety, mission operational, or maintenance necessity. Consideration is given to life-cycle cost effectiveness, savings-to-investment ratio, equipment condition, and initial costs. DOJ continues to seek funding from GSA and DOE to accomplish energy saving projects and energy audits.

Energy Savings Performance Contracts
BOP entered into a Cooperative Research and Development Agreement with the National Renewable Energy Laboratory and Industrial Solar Technology, Inc. (IST) in FY 1994. A solicitation for an energy savings performance contract (ESPC) was issued in FY 1995 and a contract was signed with IST in FY 1996. IST will install a solar energy water-recovery system to provide domestic hot water to several locations within the Federal Correctional Institution in Phoenix, Arizona. In order to verify savings, meters will be installed to measure the amount of energy delivered compared to the cost of acquiring this energy from the local utility provider.

Demand Side Management
The BOP has actively taken part in a number of utility incentives and rebate programs. Both electric and gas utilities have worked with BOP by providing services, guidance, and financial incentives on such systems as lighting, heating, ventilating, and air conditioning systems.

The Justice Data Center in Rockville, Maryland has also participated in utility incentive programs in conjunction with its lighting and chiller retrofits.

Vehicles
The Department of Justice's vehicle fleet is largely made up of law enforcement, surveillance, or emergency and special use vehicles, which are exempt from reporting. Nonetheless, DOJ operates 65 vehicles within the fleet that are fueled by methanol (M85) or compressed natural gas and five electric vehicles. The Department continues to participate in interagency committees and symposiums for alternative fuels, keeps abreast of advancements in alternative fueled vehicles, and will continue to look at the potential for expanded use of alternative fueled vehicles.

The DOJ Employee Transportation Coordinator serves on both the Transportation Demand Management Association interest group and Commuter Connections (formerly Ride Finders) for the promotion of ridesharing. These groups will implement the Regional Employer Outreach Plan, Guaranteed Ride Home, and Telecommuting Programs. The plan includes intensive marketing for the Washington and Baltimore metropolitan area and will team professional sales personnel with creative operational personnel to promote ridesharing. This plan will take place over a six year period and will cover new programs until the year 2010.

Environmental Activities
The Department closely considers environmental matters as they relate to energy conservation activities. Where asbestos is present during energy retrofits, it is handled according to current safety regulations. Engineers in the Main Justice Building are proceeding to obtain certification in the handling of chlorofluoro-carbons from GSA.

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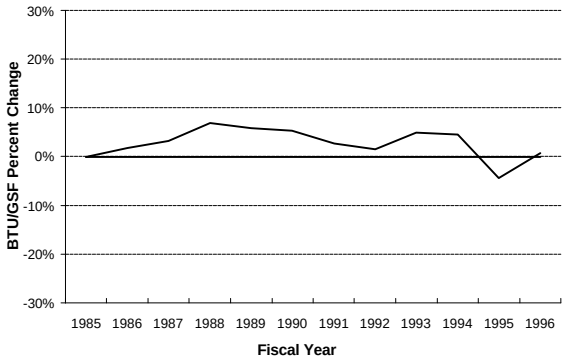
9. DEPARTMENT OF LABOR (DOL)

Energy Efficiency Performance and Implementation Strategies

In FY 1996, the Department of Labor reported a 0.7 percent increase in buildings consumption in Btu per gross square foot compared to FY 1985.

Labor Performance Toward Buildings Energy Reduction Goals



During FY 1996, DOL revised the Energy Management Plan for its agencies:

- Employment and Training Administration Job Corps Centers (JCC);
- Headquarters, Frances Perkins Building (FPB);
- Mine Safety and Health Administration (MSHA) Training Academy in Beckley, West Virginia;
- Approval and Certification Center in Triadelphia, West Virginia.

The Plan establishes an aggressive program of audits, retrofits, and new construction through FY 2005. When combined with the closure of older, less-efficient Job Corps Centers, the Energy Management Pland should allow the DOL to achieve its 30 percent energy reduction goal by FY 2005.

In FY 1996, DOL completed audits of its two largest facilities, the FPB Headquarters Building and the MSHA Training Academy, and completed comprehensive audits at three Job Corps Centers. DOL used Facility Energy Decision System (FEDS) software to develop the prioritization plan for comprehensive energy audits of the Job Corps Centers. The JCCs, with 88 percent of DOL's gross square footage, are central to meeting DOL's energy efficiency and cost savings goals. The prioritization plan ranks the JCCs based upon energy consumption, the relative dependence upon electricity and its cost, and the age of the facilities.

Several JCC audits originally scheduled for FY 1996 had to be postponed due to the uncertainty of funding in the first half of the year. Since most of the audit reports were completed in the second half of the year, the identified JCC projects will be evaluated for FY 1997 funding opportunities.

In FY 1996, JCC began extensive lighting retrofits at two sites which are expected to save the Jobs Corps program $100,000 annually. In other Centers, smaller projects to improve HVAC systems are continuing to enhance the energy efficiency of the facilities.

In FY 1996, the FPB Headquarters, DOL's Energy Showcase Facility, implemented the following projects:

- upgraded the energy management control system for efficiency;
- replaced the chillers with more energy efficient models; and
- replaced the egress doors where considerable air was escaping.

The FPB also began a comprehensive project to re-landscape the grounds of the facility. The current landscape is one of the most difficult and expensive of Washington-area Federal properties to maintain due to the large grass areas, many of which receive full sunlight. The project began with the replacement of water-intensive trees and planters along the street with native species requiring less water. Funding will continue in FY 1997 to re-landscape the roof patio areas with native groundcover.

The MSHA Training Academy implemented numerous energy retrofits during FY 1996 as a result of its energy audit. All 40-watt fluorescent lamps were replaced with 34-watt lamps, and further lighting retrofits are being evaluated. HVAC equipment is being replaced, as needed, with more energy efficient models.

At the Approval and Certification Center, installation of capacitors has resulted in an annual savings of $4,000. Other projects have been implemented, including the addition of timers to shutdown HVAC units during non-work hours.

Training
Two employees in the DOL headquarters office attended training in energy management; two completed a course in energy savings performance contracting; and the headquarters energy manager and another employee attended the TEEM '96 conference sponsored by the General Services Administration.

Funding
DOL receives most of its funding for energy efficiency projects from GSA's Federal Buildings Fund, which is supplemented by funds from DOL's operation, maintenance, repair, and construction accounts, as available. FPB requested funding from GSA to rebalance the air handling units, replace existing motors with high efficiency models, and install variable speed drives on the air handling units for the garages in FY 1997.

Energy Savings Performance Contracting
As a result of an FY 1995 DOE SAVEnergy audit of the Gary JCC in Texas, DOL has been working with DOE to evaluate energy efficiency improvement opportunities using a Super ESPC to implement projects.

FPB has begun preliminary investigations into an ESPC to provide solar hot water to the Cafeteria.

Vehicles
The DOL vehicle fleet consists of 4,013 GSA Interagency Fleet Management System vehicles, 182 agency-owned vehicles, six commercially-leased vehicles, and an undetermined number of privately-owned vehicles. DOL's total number of vehicles increased by 269 as compared to FY 1995. During FY 1996, DOL consumed 16 percent less gasoline than was consumed in FY 1991. DOL achieved the 10 percent reduction goal set forth in Executive Order 12759, and continues to reduce consumption beyond the goal.

The number of alternative fuel vehicles (AFVs) remains at 7 percent. All AFVs are a part of the GSA IFMS group. Ninety percent of DOL's AFVs are flexible-fuel cars which use either:

(1) a mixture of 85 percent methanol and 15 percent gasoline;

(2) a mixture of 85 percent ethanol and 15 percent gasoline; or

(3) any other mixture of the alcohol fuel and gasoline up to 100 percent gasoline.

The other 10 percent of AFVs are dedicated-fuel vans that use compressed natural gas.

Environmental Activities
DOL has drafted guidance concerning the various regulations, initiatives, and procurement actions associated with environmentally preferable procurement actions. The guidance discusses the purchase of EPA-designated products that are energy-efficient and contain recycled content. The guidance will be issued in FY 1997.

DOL has signed the Energy Efficiency Procurement Challenge and is working towards accomplishing the goals. During FY 1996, several large computer purchases specifying "Energy Star" equipment were made.

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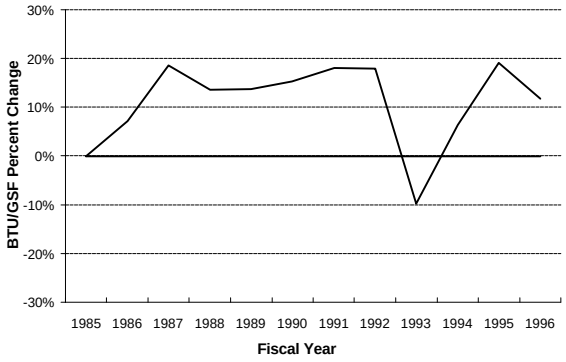
10. DEPARTMENT OF STATE (ST)

Energy Efficiency Performance and Implementation Strategies

In FY 1996, the Department of State reported an increase in buildings energy of 11.7 percent in Btu per gross square foot compared to FY 1985.

State Performance Toward Buildings Energy Reduction Goals



In 1996, the Department of State continued to implement its Energy Management and Conservation Plan that was developed in FY 1993 to meet the requirements and goals of EPACT and Executive Order 12902.

Highlights of the Plan include:

- Establishing a standardized policy for purchase of energy saving products and adoption of energy efficient building operating guidelines and procedures. State Department's policy requires building managers to procure energy-efficient motors for replacement of failed units.

- Requiring energy-efficient lighting alternatives as the standard design element in new construction and renovation of domestic buildings. The State Department requires the installation of T-8 fluorescent tubes, electronic ballasts with specular reflectors, and compact fluorescent and LED lighting in place of existing incandescent fixtures, where economically feasible.

- Procurement of Energy Star computers, printers, and fax equipment and consideration of state-of-the-art, energy-efficient technologies when acquiring equipment.

In FY 1996, the State Department conducted audits at the Beltsville Information Management Center, the Charleston Financial Center, and the newly-acquired facility in Fort Lauderdale. The Department plans to survey the remaining properties within the next two years through the Federal Energy Management Program energy audit program and the General Services Administration term audit contract.

In FY 1996, Department of State completed energy projects in three buildings. The projects focused on lighting retrofit with T-8 fluorescent lamps, reflectors, and electronic ballasts, and replacement of inefficient motors with energy-efficient motors. FY 1996 was a difficult year for implementing energy projects due to budget cuts and the phasing out of utility incentives. The loss of utility incentives will require the Department to re-evaluate the economics of identified energy projects.

The State Department requires installation of energy efficient goods and products that are cost-effective, pursuant to the requirements of the Federal Acquisition Regulations. To the extent practicable, the State Department requires vendors of goods to provide appropriate data that can be used to assess life-cycle costs of each product, including building energy systems components, lighting systems, office equipment, and other energy using equipment.

Adherence to energy efficiency standards is routinely noted in architectural/engineering (A/E) contracts for new construction. The A/E firm's compliance with the energy efficiency requirements is reviewed and monitored as part of the normal design and construction review process.

Training

The Department continued to train building management personnel through courses offered by the Association of Energy Engineers (AEE) and FEMP. The Department will continue to have additional energy managers certified by AEE in the next few years.

Funding

Funding requests for energy conservation retrofit and capital equipment replacement are included in the State Department's budget process. Projects are prioritized in order of emergency, life and fire safety, mission, operation, and maintenance necessity. Consideration is given to life-cycle cost effectiveness, equipment condition, and savings-to-investment ratio.

Energy Savings Performance Contracts
The Department of State initiated two energy savings performance contracts in FY 1996. The Beltsville, Maryland Information Management Center (BIMC) ESPC included a lighting retrofit, installation of LED exit lamps, occupancy sensors, and installation of variable speed drives on chilled water pumps. Annual energy savings are estimated to be more than 215 billion Btu.

The other ESPC at the main State Building in Washington, DC was signed with the contractor in July 1996 and involved a comprehensive lighting retrofit. At completion in December 1996, more than 29,000 T-8 fluorescent lamps, electronic ballasts and reflectors, and prismatic lens were installed in corridors and offices. The retrofit is projected to reduce energy consumption by approximately 31 percent.

The Department of State is planning another ESPC procurement at the National Foreign Affairs Training Center, the Department's energy showcase in Arlington, Virginia. The ESPC will include renewable energy technology, if practicable, and new lighting technology incorporating microwave energy source.

Demand Side Management
As part of its payment, the BIMC ESPC contractor received a $32,700 rebate from Potomac Electric Power Company's (PEPCO) Custom Rebate Program. This was $27,500 less than the $60,230 originally expected. As a result, the Department opted to pay the contractor in full, avoiding excessive interest charges, which would have negated cost savings for about three years.

Although the utilities serving the State Department have been phasing out their utility rebate programs, the Department continues to participate in other demand side management initiatives such as the Load Curtailment Program offered by PEPCO. The main State Building regularly reduces demand approximately 2,550 to 3,000 kilowatts per curtailment request, resulting in a credit of between $23,000 to $28,000 for each event.

Vehicles
Federal agencies are required to report vehicle fuel consumption when there are more than 300 vehicles in the domestic vehicle fleet, excluding special purpose and law enforcement type vehicles. Although the State Department claims exemption from reporting since its fleet is predominantly special purpose/law enforcement vehicles, the Department is participating in the DOE Alternative Fuel Vehicle Five-Year Acquisition Plan Program. State has acquired alternative fuel vehicles through the GSA Interagency Fleet Management System lease program. State's vehicle fleet includes six alternative fueled vehicles (15 passenger van) and one methanol fueled vehicle (4-door sedan). An active employee education program has stressed energy conservation when operating vehicles.

The Department also commits resources to promote ridesharing and the use of public transportation and has been involved in the Washington Metropolitan Council of Government's network to expand and enhance the ridesharing effort. The State Department's parking program promotes carpools and vanpools through the distribution of parking permits, which are automatically issued to vanpools.

Environmental Activities
The Department is scheduled to have non-CFC refrigeration machines installed by the GSA in the near future, in conjunction with the first phase of the main State building renovation. Other operating equipment that use CFC refrigerants will be phased out depending on the availability of funds.

The Department of State recycles lighting ballasts and disposes of fluorescent tubes in accordance with hazardous waste removal standards and procedures. Oils, solvents, and paints are recycled by the hazardous waste collection contractor. The Department of State recycles paper, cardboard, glass, aluminum and steel cans, as well as polystyrene used in cafeteria operations.

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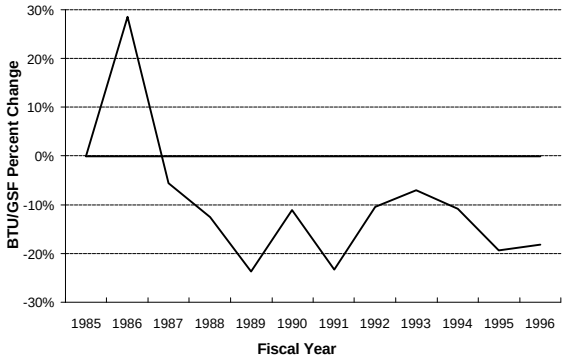
11. DEPARTMENT OF TRANSPORTATION (DOT)

Energy Efficiency Performance and Implementation Strategies

During FY 1996, the Department of Transportation reported a 18.1 percent reduction in buildings consumption in Btu per gross square foot compared to FY 1985.

DOT Performance Toward Buildings Energy Reduction Goals



The Department of Transportation's Energy Management Plan consolidates the individual energy plans of its decentralized operating administrations. In FY 1996, each operating administration developed a ten-year audit plan based on a prioritization review in compliance with Executive Order 12902. These plans will be consolidated by the Office of the Secretary of Transportation (OST) into a master audit plan for the Department that will augment the general plan.

More than 30 audits have been completed identifying approximately 318 energy conservation opportunities with an estimated implementation cost of more than $3.5 million. In FY 1996, audits were initiated that cover more than 5.6 million square feet. Notable energy surveys and energy conservation measures completed in FY 1996 are listed below:

- The OST awarded a contract to install 1,800 occupancy sensors and replaced three chillers totaling 550 tons with two new multi-stage chillers totaling 250 tons at Nassif Building, DOT's headquarters and energy showcase. Energy initiatives at the Nassif Building have helped avoid $1 million in energy costs annually.

- The United States Coast Guard (USCG) implemented $1.7 million worth of energy efficiency projects and initiated a Facility Energy Efficiency Fund using existing operations and maintenance funds. The fund will be used for projects under $25,000 that have a high return on investment.

- The Federal Aviation Administration (FAA) and DOE signed a Memorandum of Understanding (MOU) to accomplish energy efficiency studies at Air Route Traffic Control Centers (ARTCC) in Auburn, Washington; Denver, Colorado; and Salt Lake City, Utah.

- The Federal Highway Administration continued its $6.5 million renovation of the Fairbanks Building in McLean, Virginia. The renovation includes a lighting and HVAC retrofit, replacement of windows and doors, and increasing wall and roof insulation.

- The Maritime Administration continued to make energy efficiency improvements at the Merchant Marine Academy at King's Point, New York. The FY 1996 improvements included new insulated roofs for three buildings, upgraded steam distribution piping and insulated garage doors.

- The Research and Special Programs Administration is exploring funding alternatives to complete the relighting of the Volpe National Transportation Center in Cambridge, Massachusetts. A specification developed for an energy management control system for the six buildings is also being considered for inclusion in this project.

Operation and maintenance procedures are decentralized within the Department. Basic procedures at facilities include securing HVAC equipment, unnecessary lighting, and office equipment during unoccupied hours. The FAA even reduced airport and runway lighting when it will not compromise safety of aircraft operations.

New procedures, products, and contracting methods that allow more efficient operation are distributed through the Departmental Energy and Water Management Committee.

Training

In FY 1996, 86 DOT employees received energy management training. Thirty-three USCG facility engineers attended a two-day energy workshop, four FAA personnel attended a DOE Water Resource Conservation workshop, and two FAA employees attended Non-Residential Energy Code classes. In addition, the FAA developed an Energy Managers' Handbook and held an energy management workshop for headquarters and regional energy managers.

Funding
In FY 1996, almost $2.6 million of direct agency expenditures supported facility energy efficiency improvements. DOT continues to place an emphasis on identifying energy efficiency projects in the budget process and requires operating administrations to complete budget exhibits to identify funding needed to meet the requirements of NECPA and Executive Order 12902.

Energy Savings Performance Contracts
The DOT is considering five energy savings performance contracts, two of which may use the DOE Western Region Super ESPC.

- Research and Special Programs Administration prepared a request for proposals for the installation of an energy management and control system at its Cambridge, Massachusetts research facility and has advertised the ESPC in the *Commerce Business Daily*.

- The FAA is pursuing an ESPC at the Auburn, Washington ARTCC as a result of the MOU with DOE.

- The USCG is pursuing two potential ESPCs for energy improvement projects in Honolulu, Hawaii and at the USCG Academy in New London, Connecticut.

- The Merchant Marine Academy is considering an ESPC for T-8 lighting upgrades.

Demand Side Management
The OST has received $117,500 in rebates including $113,000 from Potomac Electric Power Company for projects completed in the Nassif Building. Several FAA Air Route Traffic Control Centers also received incentives for participating in load curtailment programs by using stand-by generators.

Vehicles
The DOT motor fleet is made up of 8,606 general purpose vehicles. Approximately 94 percent of these vehicles are obtained through GSA's Interagency Fleet Management System. The other six percent are agency-owned or commercially-leased vehicles located primarily in Alaska.

DOT has been working closely with GSA to ensure maximum participation in the alternative fuel vehicle (AFV) program. Currently, DOT has 11 dedicated AFVs and 630 dual-fuel AFVs. Most of the Headquarters executive fleet vehicles have been converted to AFVs. The Department will continue to work with GSA to obtain the maximize the number of AFVs.

Environmental Activities
In October 1995 DOT signed the Energy Procurement Challenge and encourages the purchase of "best practice" products that are practical and cost effective. As chillers reach the end of their useful life, operating administrations are replacing the chillers with units using the refrigerant R-134, which are nearly 40 percent more efficient, thus reducing emissions from electric generation plants.

The USCG's Civil Engineering Unit in Honolulu is evaluating a project to provide solar hot water to approximately 300 residential units. Financial and technical support is being provided by DOE and the National Renewable Energy Laboratory.

The FAA is installing photovoltaic panels as the primary power source at a number of remote communication links in the Western Region.

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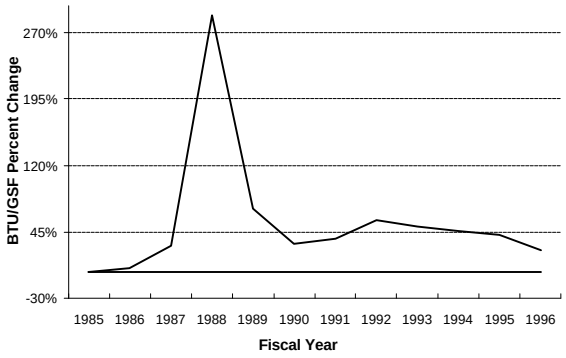
12. DEPARTMENT OF THE TREASURY (TRSY)

Energy Efficiency Performance and Implementation Strategies

During FY 1996, the Department of the Treasury reported a 23.9 percent increase in buildings consumption in Btu per gross square foot compared to FY 1985.

Treasury Performance Toward Buildings Energy Reduction Goals



The Department's program is implemented at the Bureau level. Accordingly, each of the twelve Treasury Bureaus has developed an energy program that supports the requirements of the Energy Policy Act and Executive Order 12902. All Bureaus are committed to achieving a 30 percent reduction in energy use at their buildings and facilities by 2005. Industrial facilities at the Bureau of the Mint and the Bureau of Engraving and Printing are working toward their 20 percent goal.

The Bureaus' energy management plans emphasize:

- participation in public utility company demand-side management programs;
- training for energy managers and related personnel;
- using alternative financing such as energy savings performance contracting; and
- expanding the use of alternative fuel vehicles.

Over the last three years, the Internal Revenue Service (IRS) has completed 10 energy audits. In FY 1996 the IRS Center in Andover, Pennsylvania achieved a 15 percent reduction in energy use as a result of lighting retrofits, chiller operation modifications, and changes in data processing equipment. The retrofit installation of faucet and occupancy sensors in restrooms is continuing.

The Federal Law Enforcement Training Center in Georgia completed a lighting and facility-wide chiller retrofit, and installed a direct digital control system and reflective roofing materials.

The Bureau of the Public Debt installed energy conserving window film. In FY 1997 it will install and test a new combustion technology designed to improve the efficiency of their boilers.

The United States Customs Service updated its energy plan, installed storm windows and doors, and replaced furnaces at several of its border crossing stations.

The Financial Management Service's energy initiatives included installing motion sensors and retrofitting conference room lighting and exterior lighting.

Training

During FY 1996, seven Treasury employees attended energy management training courses.

Funding

The Department of the Treasury invested $169,700 of agency funds for energy efficiency and water conservation projects in FY 1996. This does not reflect significant spending by GSA on buildings delegated to Treasury. Anticipated savings from Treasury's FY 1996 investment total is $89,200.

The Treasury Department plans to invest an additional $5.3 million in FY 1997. The bulk of this spending is for energy upgrades at Bureau of the Mint facilities.

Energy Savings Performance Contracts

While the Treasury did not enter into any energy savings performance contracts in FY 1996, three Bureaus—the Mint, Secret Service, and Departmental Offices—are set to implement contracts in FY 1997. The Departmental Offices is in the final stage of evaluating submissions while the Mint and Secret Service are developing solicitations. The Mint and Departmental Offices' ESPCs are the result of audits conducted through the DOE/FEMP SAVEnergy program. Details on each proposed ESPC are provided below:

- The Departmental Offices' ESPC will retrofit the lighting in the Main Treasury Building and the Annex, improve HVAC controls, replace two 800 ton chillers, and improve the lighting controls in the Annex.

- The Secret Service's ESPC will include energy and water savings opportunities at their training center in Beltsville, Maryland. They are also exploring an ESPC with Washington Gas to convert the Center's oil-fired boilers to natural gas.

- The ESPC at the Mint in Philadelphia will include a lighting retrofit, HVAC upgrade and chiller replacement, and improvements to the compressed air system.

Demand Side Management
The IRS Center in Atlanta, Georgia has entered into a peak load shedding agreement with Georgia Power. During peak periods the Center uses its generators to shed load and Georgia Power pays the cost of the fuel. The Center saved $177,000 in FY 1996.

The Bureau of Engraving and Printing received $14,000 in rebates from Potomac Electric Power Company for its lighting retrofits.

Vehicles
The Treasury Bureaus have implemented driver awareness programs to educate their drivers about the most efficient methods for operating their vehicles. Several Bureaus have turned in larger, less fuel-efficient vehicles in favor of smaller, more fuel-efficient vehicles.

The Federal Law Enforcement Training Center operates six compressed natural gas vehicles. IRS and Customs Service are working with GSA to expand their use of alternative fuel vehicles (AFVs). The Office of the Inspector General and the Financial Management Service each operates two dedicated AFVs and the Departmental Offices and the Bureau of Engraving and Printing each operate one.

Treasury continues to expand the Flexiplace programs started as a pilot program at the Internal Revenue Service. The emphasis is now on telecommuting either from home or satellite locations, thereby reducing the number of vehicles on the road. Additionally, Treasury has an incentive program to encourage employees to ride public transportation.

Environmental Benefits
Treasury's program to replace existing CFC chillers with energy-efficient non-CFC chillers eliminates a potential source for the release of ozone depleting substances. Treasury's affirmative procurement program issued under Executive Order 12873 encourages the Bureaus to purchase energy-efficient and environmentally sound products.

Treasury also has an extensive recycling program including paper, glass, cans, batteries, tires, antifreeze, used oil, lead, brass, and pallets. The Bureau of Engraving and Printing burns the rejected and mutilated Federal reserve notes to produce steam.

Treasury is purchasing only Energy Star compliant computer equipment. PCB-containing ballasts and fluorescent tubes are disposed of or recycled in accordance with the applicable Federal and State regulations.

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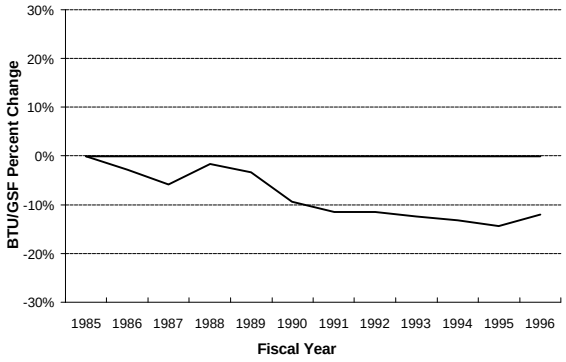
13. DEPARTMENT OF VETERANS AFFAIRS (VA)

Energy Efficiency Performance and Implementation Strategies

During FY 1996, the Department of Veterans Affairs reported a 12.0 percent reduction in buildings consumption in Btu per gross square foot compared to FY 1985.

VA Performance Toward Buildings Energy Reduction Goals



In order to meet the requirements of NECPA, EPACT, and Executive Order 12902, the Department of Veterans Affairs developed a 13-year plan for FY 1993 to FY 2005.

As part of the VA's plan, each medical center has been assigned a target energy usage reduction goal by FY 2005. The medical centers are required to update their five-year energy management plans annually in order to track progress toward meeting established energy conservation goals. Implementation of energy audit and survey recommendations at many medical centers have resulted in changes in operation and maintenance procedures to maximize energy efficiency.

During FY 1996, the VA continued to concentrate on the research and development of cost-effective methods to reduce overall electrical consumption and associated costs. Increased demands to satisfy the needs of modern medical care have resulted in an increase of electrical consumption (in kilowatt hours) of 23.3 percent compared to FY 1985. To offset this increase, all new construction and retrofit projects will incorporate:

- Design criteria for all new construction and retrofit projects that includes the use of the most energy-efficient lighting fixtures.
- Energy management and control systems with direct digital controls specified as part of new construction and retrofit of HVAC systems.

Building retrofit projects underway at VA facilities include the installation of energy management control systems, modifications of the existing HVAC systems, steam trap replacement, improvement of boiler efficiency and lighting and power systems, installation of additional insulation and storm windows, and water conservation projects.

Training

The VA conducted a nationwide survey to determine the level of training required of energy managers at the medical centers. In FY 1996, VA staff members participated in energy conservation training programs offered by the Association of Energy Engineers in cooperation with the Department of Energy.

Funding

Approximately $3.7 million was allocated for energy conservation retrofits and capital improvements in FY 1996. In the upcoming year, the VA plans to fund cost-effective projects that have been approved by the Veterans Integrated Service Network for implementation at medical centers. Additionally, some energy efficiency projects identified by the medical centers may be funded by utility rebate programs.

Energy Savings Performance Contracts

During FY 1992, the West Haven VA Medical Center became the first Veterans Affairs hospital to award an energy savings performance contract to fund the lighting system replacement, cooling system installation, and maintenance of the new chiller equipment. The medical center received a 1995 Federal Energy and Water Management Award from the DOE for their exceptional accomplishments in saving energy through this contract award.

The VA continues to investigate other opportunities to fund energy saving capital improvements through ESPCs.

Demand Side Management

In FY 1996, the VA participated in utility rebate programs to fund energy conservation projects.

The VA has partnered with the Southern California Edison Company to develop an electricity saving program at the West Los Angeles VA Medical Center. The project will replace lighting and air conditioning equipment with more efficient systems. All project costs will be paid from savings in electricity resulting from the new equipment. While the agreement is not an ESPC, the

endeavor replaces inefficient equipment and requires no capital expenditure by the agency.

The VA is evaluating the cost-effectiveness of installing thermal storage systems at many medical centers through utility company incentives.

The VA also owns, operates, and maintains one co-generation plant.

Vehicles

Approximately 75 percent of the Departments's vehicles are leased through the General Services Administration. The VA fleet includes 52 dedicated alternative fuel vehicles and 56 dual-fuel vehicles which are concentrated in the 22 non-attainment and 125 metropolitan statistical areas. The VA anticipates that the agency's recent reorganization of the medical centers by geographical region will reduce vehicle fuel consumption in FY 1997.

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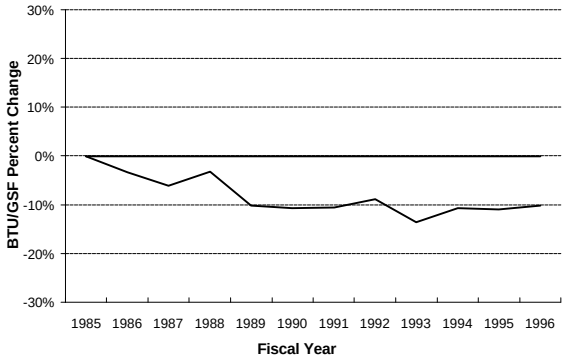
14. ENVIRONMENTAL PROTECTION AGENCY (EPA)

Energy Efficiency Performance and Implementation Strategies

In FY 1996, the Environmental Protection Agency reported a decrease in buildings energy of 10.2 percent in Btu per gross square foot compared to FY 1985.

EPA Performance Toward Buildings Energy Reduction Goals



The objective of EPA's Energy and Water Conservation Program is to effectively and efficiently use natural resources when designing, constructing, and maintaining the Agency's facilities and energy systems. EPA is committed to reducing energy consumption by upgrading existing HVAC systems with non-CFC technologies and by incorporating innovative energy-efficient and renewable technologies, where feasible.

EPA has created an integrated environmental conservation and pollution prevention program that addresses energy and water conservation, chemical management, waste prevention and recycling, affirmative procurement, and sustainable building practices, such as Green Buildings.

EPA plans to achieve its 20 percent energy reduction goal by incorporating energy-efficient technologies in its four highest energy consuming laboratories. The 30 percent goal will be met by installing automated control systems to monitor and maximize the operating efficiencies of the equipment.

In FY 1996, EPA signed DOE's Federal Procurement Challenge, updated its building standards to emphasize energy and water conservation, and issued a final rule on purchasing energy-efficient computer equipment that meet EPA "Energy Star" requirements.

As a Green Lights Partner, EPA has agreed to design all new buildings with energy-efficient lighting systems, which will save EPA approximately 12.5 billion Btu and $341,000 annually when fully implemented.

In FY 1996, EPA conducted energy surveys at six laboratories and identified the Cincinnati, Ohio and Ann Arbor, Michigan laboratories as having the highest energy consumption and the greatest energy savings opportunities. Energy surveys will be conducted at five additional laboratories in FY 1997.

EPA is pursuing public/private partnerships to upgrade the energy systems in these facilities. A number of initiatives are planned for the National Vehicle and Fuel Emissions Laboratory (NVFEL) in Ann Arbor, Michigan including installation of gas turbine and on-site power generators to displace electrical demand charges; cogeneration to use waste energy from the generators to heat and cool the building; two-stage absorption cooling using waste steam to provide cooling; desiccant cooling to control humidity and provide space conditioning; heat pumps and heat recovery for more efficient climate control; heat exchangers to reclaim heat from the exhaust stack; and recirculated water to minimize water consumption.

At the Cincinnati, Ohio laboratory, a hybrid system integrating high efficiency chillers, heat pipes, evaporative cooling, and direct gas-fired heating is being designed to improve energy efficiency and meet the required environmental conditions.

Several other pilot demonstration projects are underway at EPA facilities to test energy efficient equipment:

- The Edison, New Jersey facility has installed a natural gas desiccant cooling system to test this technology's ability to recover energy from fume hood exhausts and to control humidity and air-conditioning in analytical chemistry laboratory modules.

- At Fort Meade, Maryland, EPA working with DOE and DOD, formed a public/private partnership to demonstrate the world's first megawatt-class solid oxide fuel cell power station. The station will provide extremely efficient, clean power to the facility at over twice the efficiency of existing conventional power-generating combustion technologies.

- The Gulf Breeze, Florida, and Montgomery, Alabama facilities have been selected as test sites for the advanced node-based direct digital control

system. The technology enables facility managers to improve building controls and real-time monitoring of building security, fire protection and indoor environmental quality.

- EPA is designing an HVAC system upgrade at the Narragansett, Rhode Island facility that will use high-efficiency chillers, geothermal heat pumps and energy recovery technologies.

EPA is also designing and developing a consolidated headquarters facility in Washington, DC and has been successful in incorporating numerous green building features. These features include: choosing alternative materials with low off-gassing potential; choosing specified low volatile organic compound paints; incorporating use of operable windows; choosing systems furniture using environmental selection criteria; and incorporating Green Lights lighting design and low-flow plumbing devices.

EPA signed a Letter of Interest to work with the Corporation for Solar Technology and Renewable Resources, a public corporation charged with developing and distributing solar and renewable energy, and with DOE to analyze solar power purchases at various Federal sites including EPA's Las Vegas laboratory.

Training and Outreach
During FY 1996, EPA hosted and participated in numerous energy and water conservation conferences, seminars, and working groups including the National Renewable Energy Training Conference and the Building Commissioning Demonstration Workshop. Program staff also arranged for various vendors to demonstrate new innovative technologies to engineers and architects.

Energy managers and maintenance personnel received on-site training on regulations, benefits of energy conservation, new techniques for conserving resources, and strategies for identifying energy conservation opportunities.

EPA has developed numerous program tools to inform regional energy managers and facility staff about energy conservation measures and opportunities and the benefits and successes of energy management. EPA maintains an information clearinghouse and hotline and publishes a quarterly newsletter, *Conservation News*, to efficiently disseminate information on conservation-related information. The newsletter and other resources are available on the EPA website at http:// www.epa.gov/consrv-news.

Funding
In FY 1996, EPA's Energy and Water Conservation Program had a budget of approximately $1.6 million nationwide. In addition to these centrally-managed program funds, regional facility managers have authority for approving up to $75,000 per facility project. The Agency's Energy and Water Conservation Program funding should remain at $1.6 million in FY 1997.

Energy Savings Performance Contracts
EPA is aggressively developing an ESPC for the complete energy upgrade at NVFEL in Ann Arbor. A pre-solicitation conference was held in FY 1996 and the ESPC was announced in the *Commerce Business Daily* on November 5, 1996. The Request for Proposals was issued in FY 1997. EPA intends to use this ESPC as a template for pursuing energy upgrades at other facilities. This project will demonstrate improved energy efficiency, pollution prevention both at the site and source.

Water Conservation
EPA requires its facilities to monitor and report water consumption and cost, use water conserving equipment in all newly leased and built facilities, and assess water conservation opportunities during facility site visits. In FY 1996, operational and management measures have reduced water consumption by 19 percent compared to the FY 1994 baseline.

Vehicles
During FY 1996 EPA operated a total of 125 alternative fuel vehicles (AFVs): 101 methanol (M-85), 10 ethanol (E-85), 14 dedicated compressed natural gas (CNG), and one bi-fuel CNG. AFVs constitutes 18 percent of all vehicles leased from GSA by EPA.

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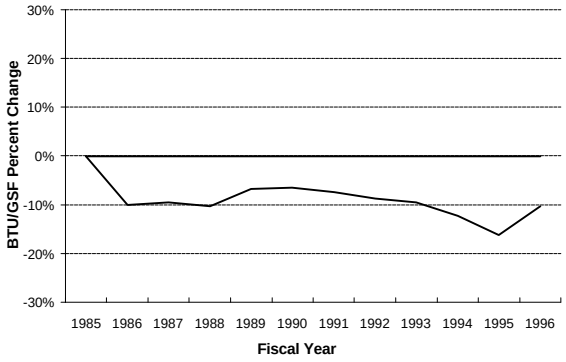
15. GENERAL SERVICES ADMINISTRATION (GSA)

Energy Efficiency Performance and Implementation Strategies

In FY 1996, GSA reported a 10.3 percent decrease in energy consumed in owned and leased buildings compared to FY 1985 in Btu per gross square foot.

GSA Performance Toward Buildings Energy Reduction Goals



GSA's energy strategy includes performing energy audits, efficiently operating and maintaining facilities, purchasing energy efficient products, training energy managers, implementing cost-effective projects, and increasing tenant awareness of energy conservation. GSA has developed a comprehensive audit plan that incorporates 10 percent of the inventory each year for 10 years. GSA conducted 78 audits during FY 1996. All energy efficiency and water conservation projects identified will be implemented, pending available funding.

GSA aggressively includes operation and maintenance and energy conservation measures in its Federal facilities to achieve energy efficiency goals. GSA currently has 82 energy efficiency projects underway, 14 of which were begun in FY 1996.

The FY 1996 projects include:

- lighting systems retrofits;
- chiller replacement;
- installation of energy management and control systems and improvements in HVAC, boiler, and chiller control systems; and
- improvements in building envelope thermal efficiency.

GSA has been testing ANSI/ASHRAE standard 135-1995 (referred to as BACNet), an open communications protocol for building automated controls, and has been installing occupancy sensors and variable speed drives.

Energy projects are selected based on evaluations of life-cycle cost, savings-to-investment-ratio, and total energy saved, as well the ability of the project to leverage additional funding, such as demand-side management funds and utility contracts.

During FY 1996, GSA used area-wide utility contracts and basic ordering agreements to finance and implement six energy efficiency projects saving more than 29,260 million Btu and almost $977,000 annually. The utility-financed projects include:

- a project in Laguna Niguel, California that will reduce energy consumption by 3.75 million kWh and save $541,000 annually;
- a project in Honolulu, Hawaii that will save more than 2.5 million kWh and save an estimated $262,200;
- three projects in Florida that will save more than $111,500 annually; and
- a project in Boston, Massachusetts that will save $62,000 annually.

The area-wide utility contracts have been amended to include provisions for GSA and other Federal agencies to order energy audits, designs, construction, and operations and maintenance from the utilities.

GSA considers opportunities for solar and other renewable energy in building design and retrofits. GSA's *Facility Standards for Public Buildings* (PBS PQ 100.1) contains language and provides guidance for renewable energy to be considered in proposed designs. All design for new construction incorporates passive solar in site orientation, glazing and daylighting.

GSA has implemented a number of solar and other renewable energy projects: installing solar parking lot lights at facilities in Puerto Rico and Georgia; testing lighting control strategies such as daylighting and dimming lighting fixtures in proportion to the amount of daylight entering the building; and using passive solar design in the new Phoenix, Arizona Courthouse, for which the Solar Energy Industries Association (SEIA) conducted a peer review. Renewable energy projects are

planned at the Denver Federal Center in Denver, Colorado including solar water preheat, photoelectric sensors and dimmable ballasts, and daylighting strategies.

GSA continues to support the procurement of energy efficient products by providing product supply schedules that promote energy-efficient and environmentally preferable products and by mandating the purchase of Energy Star computers and office equipment.

Training
GSA provided energy management training to almost 200 facility managers in FY 1996. In addition to the five training areas mandated by EPACT, routine training includes topics on industrial energy process and building analysis, building life-cycle cost analysis, and energy management techniques. SEIA also presented its workshop, Designing Low-Energy Buildings, to GSA architects and engineers in two regions. GSA currently has on staff 28 Certified Energy Managers who received certification from the Association of Energy Engineers.

In FY 1996, GSA held 13 workshops including: 10 workshops on ASHRAE 90.1 co-sponsored with the State of South Carolina; an Energy Partnership workshop with ConEdison and DOE in New York; a financing workshop co-sponsored with DOE in Seattle, Washington; and The Energy and Environmental Management Conference (TEEM '96) held in Monterey, California.

Funding
In FY 1996, Congress appropriated $20 million for the GSA Energy Conservation Project Fund program of which $12.6 million was reprogrammed for security measures following the Oklahoma City bombing. The fund is designated specifically to finance projects that will improve energy efficiency and reduce energy consumption. Congress has appropriated $20 million for FY 1997, but has appropriated no funding for this program in FY 1998. The continuing lack of investment will likely prevent GSA from meeting its energy reduction goals.

GSA also received SAVEnergy funds from DOE to conduct audits, and received energy audits from utility companies at no cost to the Government.

Energy Savings Performance Contracts
GSA has informed all delegated agencies that ESPCs are a viable option to accomplish energy conservation projects in buildings where other funds are unavailable.

Currently, GSA does not have any energy savings performance contracts in place due to the administrative burden required to develop, award, and administer the ESPCs and the high financing rate which makes some projects economically unfeasible. However, GSA does plan to use the DOE Super ESPC when available.

Demand Side Management
GSA has found financing through utilities an effective method to accomplish energy projects. In FY 1996, GSA received $1.084 million in utility rebates and will save an estimated $1.3 million annually in energy costs.

Vehicles
GSA has approximately 9,600 alternative fuel vehicles, representing seven percent of its total vehicle fleet.

Environmental Activities
GSA's environmental activities include waste minimization, pollution source reduction, recycling, use of alternative fuel vehicles, procurement of recycled products, CFC reduction, energy and water conservation programs, efficient packaging and shipping methods, alternative work sites, flextime, and ridesharing.

To conserve energy and to reduce pollution, GSA has provided facilities for more than 3,000 Federal employees in telecommuting centers and plans to have 60,000 telecommuting employees by the end of FY 1998. GSA estimates that the telecommuting program saves 6,000 passenger miles per Federal employee per year.

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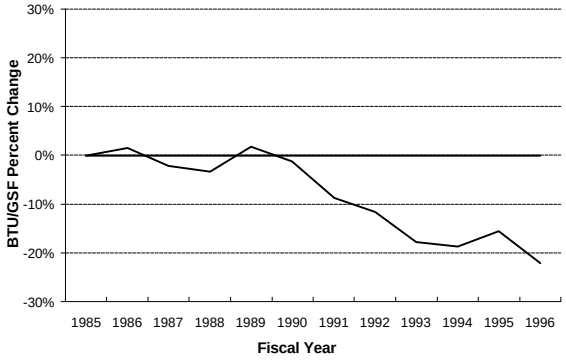
16. NATIONAL AERONAUTICS AND SPACE ADMINISTRATION (NASA)

Energy Efficiency Performance and Implementation Strategies

During FY 1996, the National Aeronautics and Space Administration reported a 22.1 percent reduction in buildings energy consumption in Btu per gross square foot compared to FY 1985.

NASA Performance Toward Buildings Energy Reduction Goals



NASA manages ten major centers in the United States, as well as other field installations and overseas tracking stations. NASA revised its comprehensive Energy Conservation and Management Implementation Plan (ECMIP) in March 1994 as required by NECPA. The ECMIP is based on the Centers' 15-year energy conservation plans and defines the Agency's ten-part strategy to meet Federal energy goals. It also summarizes implementation plans for Federal vehicle fuel efficiency and alternative fuel vehicle procurement activities.

NASA selected the Renewables and Energy Efficiency Planning (REEP) computer program developed by the U.S. Army Construction Engineering Research Laboratory to conduct the prioritization survey required by Executive Order 12902, section 302. Results of the REEP analysis indicate the potential to invest $82 million in energy and water conservation measures that will save $14.4 million annually for an overall payback of 5.7 years. If these measures are implemented, overall facility energy consumption can be reduced by 10 percent. The REEP analysis also indicates the potential for cost effective cogeneration of electric power at four installations. These cogeneration projects would cost $62 million to implement and save $8.5 million annually, for a 7.3 year overall payback.

From FY 1991 through FY 1996, NASA completed comprehensive facility audits for 38 percent of its total building square footage.

Energy efficiency activities conducted by NASA centers and field installations fall under four main categories: surveys, metering, operation and maintenance procedures, and energy efficiency projects. The energy efficiency projects are as follows:

- Lewis Research Center (LeRC) completed a project to replace old, inefficient diffusion based vacuum pumps in Building 301 with an energy efficient cryopumping system which has doubled productivity, improved test quality and is expected to save $80,000 per year. LeRC is also installing energy conserving surge avoidance controllers for the central air system. Electrical savings of $1 million per year are anticipated for an initial investment of $500,000. LeRC also completed the renovation of Building 500, including installing a more efficient energy management control system, high efficiency chillers and motors, and heat-exchanger systems.

- The Office of Space Communications complex reported an increase in mission efficiency from 0.88 tracking hours per megawatt hour in FY 1985 to 2.75 tracking hours per megawatt hour in FY 1996, an efficiency improvement of over 200 percent. This improvement is due in part to increased mission workload, but also to upgrading Deep Space Network communication equipment with modern, energy efficient components, including electric antenna drives, which save 200 kilowatts per antenna; higher efficiency lighting technologies which reduce power consumption by 30 percent; and the use of energy efficient antenna controllers, electronic receivers, and tape recorders.

- Goddard Space Flight Center (GSFC) completed its Central Power Plant upgrade project, replacing the last of seven chiller units with a combined cooling capacity of 14,000 tons, with high efficiency units. Annual savings are expected on the order of $624,000 a year. Five primary chilled water pumps, five 40,000 pound per hour boilers, and a modern digital energy management control system were also installed during 1996. The EMCS has been installed in 16 other buildings.

- Jet Propulsion Laboratory (JPL) invested $800,000 in energy efficiency projects during FY 1996, including the installation of electronic variable speed drives, boiler replacements, insulation retrofits, duct insulation, parking lot lighting, and T-8 fluorescent lamp and electronic ballast retrofits.

- Kennedy Space Center (KSC) is modifying the Launch Complex 39 area chilled water pumping system to increase energy efficiency. Thermal optimization control valves are being utilized to control the leaving water temperature from each facility in order to maximize the use of the chilled water, thereby reducing consumption. At its industrial area chiller plant, KSC is replacing older CFC refrigerant chillers with new ones, which is expected to increase efficiency by 64 percent. During 1996, the net energy avoided by KSC from implementing projects, conducting training and awareness activities, and improving operational procedures was 108 billion Btu. This represented a cost avoidance of $1.3 million.

- Santa Susana Field Laboratory implemented 36 energy conservation measures which include lighting upgrades, occupancy sensors installations, HVAC improvements, and facility consolidation.

- Lewis Research Center is installing a remote electrical energy monitoring system that links nearly 95 percent of the site buildings. The system currently has 172 sensors on line.

- White Sands Test Facility completed energy efficiency modifications to its altitude simulation vacuum system used in propulsion testing. Recent modifications have allowed the use of boiler generated steam which has significantly improved the system's energy efficiency. The minimum system energy consumption was reduced from 12.7 million Btu per minute to only 60,000 Btu per minute, a 99 percent reduction.

Energy Showcase Facility

The Marshall Space Flight Center (MSFC) Project Engineering Facility, Building 4203, was designated as NASA's showcase facility. The showcase facility features many state-of-the-art energy efficiency and environmental quality measures such as tinted windows, a variable air volume HVAC system, HCFC-123 chillers, an automated energy management system with direct digital controls, self-illuminating exit signs, and a radon venting system. A comprehensive audit of the facility identified additional energy and water conservation measures, including lighting upgrades and occupancy sensors, high efficiency motors, variable frequency drives for the air handling units and chilled water pumping system, water saving devices, and operations and maintenance recommendations. A lobby display was also installed in 1996 to increase the awareness of the building's energy and water conservation features to building occupants and visitors.

Training

NASA contracted with the National Renewable Energy Laboratory to provide training in renewable energy technologies for all installation energy managers. The total cost of this training was approximately $40,000. Goddard Space Flight Center invested $200,000 in energy management control system training for engineers and maintenance operators at GSFC and Wallops Flight Facility. This training included troubleshooting, equipment scheduling, trending and programming. Five members of the Center's Energy Management Council also attended renewable energy training.

Approximately 100 individuals at KSC attended local training/seminars on new and applicable technologies. An additional 4,400 persons attended KSC's FY 1996 Energy Awareness Week observance.

Funding

Projects and surveys proposed by the energy manager at each field installation compete for funding along with other installation requirements. To compete successfully, projects having energy conservation as their sole purpose must have relatively short amortization periods since construction funds are very limited.

NASA-funded energy conservation projects are divided into two categories. The first consists of minor capital improvement projects (under $200,000) that can be achieved with Field Installation funds. The second consists of major capital improvement projects (over $200,000) requiring Construction of Facilities (CoF) program funding. Energy conservation projects must compete with all other construction projects for CoF funding.

NASA Handbook 8820.2A, *Facility Project Implementation Handbook*, specifies procedures for submitting CoF projects. Life-cycle costing is the primary tool for analyzing energy retrofit projects.

There were no CoF projects accomplished in FY 1996 for the sole purpose of energy or water conservation. However, many CoF projects do contain features which will conserve energy or water and reduce costs. Examples include: HVAC system modernization, upgrade of energy monitoring and control systems, lighting and electrical system efficiency improvements, weatherization and other building envelope measures, and water conservation measures including conservation, recycling, and reuse projects.

It is not possible to accurately breakout the cost of energy efficiency and water conservation measures from the overall budgeted amount for CoF discrete, repair, and rehabilitation and modification projects. For the purposes

of this report, the entire budgeted amount for such projects, which may include significant non-energy and water conservation costs, is identified. NASA estimates that in FY 1996 annual CoF expenditures for projects that include significant efficiency features and field installation expenditures for energy and water efficiency totaled $30.2 million.

Energy Savings Performance Contracts

Although there has been considerable interest in energy savings performance contracting by field installation personnel, no ESPC initiatives have been put in place, with the exception of the Energy Cost Reduction Program (ECRP) at the Michoud Assembly Facility (MAF). The MAF, a Government-owned, contractor-operated facility, implemented an ECRP with Lockeed-Martin Marietta Space Systems (LMMSS) in 1988. Under this program, LMMSS's prime contract with NASA was modified to include an energy conservation incentive clause. The program rewards LMMSS for exceptional performance in the management of energy usage at MAF by providing 8 to 14 percent of energy savings achieved as an additional award fee. In FY 1995, the ECRP was modified to include cost savings for contractor recovery of utility company overcharges and negotiation of lower utility rates. Cumulative savings under the MAF ECRP program since FY 1988 total $ 13.8 million, of which approximately 17 percent was awarded to LMMSS. Savings from the MAF ECRP were used to reduce the overall cost of the Space Shuttle External Tank Program.

Johnson Space Center (JSC) is planning to award a combined ESPC and Base Operating Support Services contract in early FY 1997, and GSFC is scheduled to award an ESP contract in FY 1997.

Demand Side Management

NASA field installations received a total of $169,200 in utility rebates during FY 1996. The rebates were received by KSC ($137,500) and GSFC ($31,700). Stennis Space Center signed a demand side management agreement with Mississippi Power Company (MPCO) for three years beginning July 1995. Under the agreement, Stennis Space Center will generate 1,500 kilowatts of electrical power to reduce MPCO demand within one hour of notification. FY 1996 savings from this agreement approached $50,000.

Vehicles

The total number of light-duty alternative fuel vehicles now in use by NASA centers and support contractors is 205 out of a total stock of 2,782 light-duty vehicles. This represents nearly 25 percent of the number of vehicles in NASA's EPACT "covered fleet." NASA exceeded the EPACT AFV acquisition requirements by acquiring 70 AFVs in FY 1996. This represents over 82 percent of newly acquired light-duty vehicles in the EPACT "covered fleet."

NASA's largest concentration of AFVs is located at KSC, which leases 98 dedicated compressed natural gas and dual-fuel CNG/gasoline AFVs from the General Services Administration's Interagency Fleet Management System. The KSC team responsible for the development of a compressed natural gas fast-fueling station for these vehicles received a 1996 Federal Energy and Water Management Award for their outstanding contribution to mobility energy management.

Water Conservation

KSC continues to reduce overall potable water consumption through conservation, operational changes, or reuse. Continuing water conservation efforts include the installation of water saver retrofit kits for existing restroom flush valves, and a bi-annual inspection of all main potable water distribution system components to verify proper operation and repair leaks. KSC has also developed technology upgrades in the application of ozone as a treatment process to yield effective corrosion, deposition and biological control of comfort conditioning cooling towers of medium to high capacity. Cooling tower ozone treatment, which continues to produce water savings of 15 million gallons per year at the Launch Complex area and the Industrial Area Chiller Plant, has been supplemented with make-up water softening. This water conditioning measure will offset blowdown requirements yielding an additional 16,000 gallons per day savings, which translates to 5 million gallons per year total.

Finally, Lewis Research Center completed the rehabilitation of mechanical systems in the Basic Materials Laboratory, Building 160, which eliminated once-through cooling in the HVAC systems in order to reduce water consumption.

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17. NUCLEAR REGULATORY COMMISSION (NRC)

Energy Efficiency Performance and Implementation Strategies

In FY 1996, the Nuclear Regulatory Commission's One White Flint North (OWFN) building reported a 1.6 percent increase in energy usage as compared to FY 1989, the first full year the building was occupied. Energy consumption in NRC's Two White Flint North (TWFN) building increased energy usage by 6.5 percent since FY 1995, the first full year of building occupancy. The increase was attributed to the severe winter weather temperatures requiring heating systems to be activated outside working hours to prevent damage to buildings. The NRC manages both facilities under a delegated authority agreement with the General Services Administration.

NRC's Energy Management Implementation Plan is updated annually to incorporate new initiatives, programs, and strategies to meet the goals of Executive Order 12902. FY 1996 energy initiatives included:

- An automated energy management system to maximize energy efficiency of HVAC equipment and systems;
- Implementation of an energy conservation awareness program for employees;
- Reduced chiller operations;
- Implementation of energy efficient design in construction and space renovations;
- Evaluation of energy usage in operating practices through quality assurance inspections;
- Enhanced filtering and water treatment to enhance energy efficient operations;
- Utilization of preventative maintenance practices;
- Utilization of water conservation technologies;
- Commercial facilities management contract requirements to conserve energy by prudent equipment operating procedures and maintenance;
- Use of heat exchangers to provide free cooling;
- Replacement of incandescent bulbs with compact fluorescent bulbs; and
- Use of occupancy sensors to control interior lighting.

Additionally, the HVAC in the TWFN building has been retrofitted to remedy a design deficiency which had allowed cold air to infiltrate the building at key employee and public access areas.

A GSA energy consultant conducted a survey of the OWFN secondary condenser water loop and other building HVAC systems and equipment and identified additional conservation opportunities such as installation of two plate-type heat exchangers and HVAC control upgrades.

Training

NRC is an active participant in the Interagency Energy Management Task Force and the Professional Energy Managers Association. Staff members attend seminars, workshops, and conferences sponsored by these organizations.

Energy Savings Performance Contracts

NRC examined the feasibility of awarding energy savings performance contracts to install occupancy sensors, LED exit signs, and electronic ballasts. Additional studies are being performed to identify other conservation opportunities

Demand Side Management

During FY 1996, OWFN and TWFN participated in the Potomac Electric Power Company's voluntary load curtailment program.

Vehicles

In FY 1996, NRC reduced its vehicle gasoline usage by 15,412 gallons and diesel fuel usage by 276 gallons.

NRC advocates use of public transportation by providing monthly subsidies of $21 to employees using public transportation.

Environmental Activities

To ensure compliance with the Clean Air Act of 1990, NRC installed refrigerant purifier purge equipment on the chillers at OWFN. The equipment minimizes the level of ozone-depleting chlorofluorocarbons. The NRC also has strong programs for recycling, waste reduction, and purchase of materials containing recovered materials.

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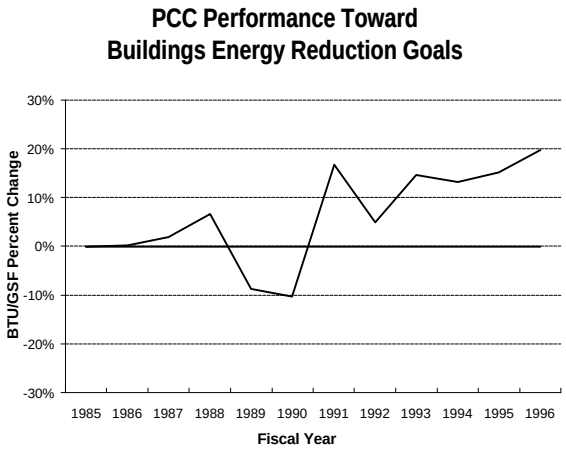
18. PANAMA CANAL COMMISSION (PCC)

Energy Efficiency Performance and Implementation Strategies

During FY 1996, the Panama Canal Commission reported a 19.8 percent increase in buildings energy consumption in Btu per gross square foot compared to FY 1985.



The Commission, given its unique mission in the Republic of Panama, is not bound by targeted reductions of electrical power and associated energy for buildings/facilities, reductions of fuel use by vehicles, and procurements of alternative-fueled vehicles under Executive Order 12759. Nevertheless, PCC will continue to manage the waterway consistent with these Federal efforts to the extent practical, until termination of the Commission and United States operation of the Panama Canal in December 1999.

The Office of Executive Planning oversees agency-wide actions to implement energy plans and achieve projected goals through its Environmental/Energy Unit, and prepares guidance on procedures, policies, and other matters governing Federal energy management. Technical and engineering coordinators at energy consuming areas of the organization also provide needed assistance to maintain maximum operational energy efficiencies. To most effectively monitor consumption trends, reports on unit-level usage of electrical power, gasoline, diesel, and distillate fuel are submitted monthly to the environmental/energy staff.

PCC's Buildings Energy Plan was the basis for ongoing buildings maintenance, monitoring, and improvement programs. In FY 1996, the agency maintained a strong interest in technical advances that enhance energy efficiency. State-of-art energy savings measures were incorporated where practical in buildings and facilities under construction or renovation. Facilities with the highest consumption rates received first priority for energy-related lighting and air conditioning improvements.

Ongoing maintenance includes relamping and light fixture cleaning every three years or as needed. This program was established in conjunction with surveys performed to help determine specific requirements for reflectors, new ballasts, lenses, and changes from incandescent or mercury vapor to fluorescent or high pressure sodium/metal halide lights. Virtually all of the Commission's buildings have been retrofit with energy conserving lamps and light fixtures.

Additional energy conservation projects undertaken in FY 1996 include:

- Installation of programmable lighting controllers at two large industrial facilities allowing for more efficient electricity usage during non-operating hours.

- Installation of variable speed drives on air-handling units in three large office buildings, permitting more efficient use of electricity for cooling.

Annual energy savings from these projects are estimated at over $26,000 each year.

Training

During FY 1996, one engineer received energy conservation training at a cost to the agency of $2,400. In previous years, engineers have participated in energy conservation seminars, conferences, and the Department of Energy's TeleFEMP satellite video broadcasts.

Funding

The PCC functions on a self-financing basis, with recovery of all operating costs, including interest, depreciation, capital for plant replacement, expansion and improvements, and payments to the Republic of Panama for public services and annuities, through tolls and other revenues. Revenues from tolls and all other sources are deposited with the United States Treasury into the Panama Canal revolving fund. Resources in this account are available for continuous use, serve to finance Canal operating and capital programs, and are reviewed annually by Congress. PCC does not seek separate funding of its energy-related projects.

Energy Savings Performance Contracts

The Commission did not enter into energy savings performance contracts during the fiscal year. There is not sufficient economic opportunity for this type of initiative with PCC, given its self-financing basis, location overseas, and terminal status, in addition to the advanced

service life of most of its buildings. Nevertheless, in FY 1996 PCC continued to implement a buildings/facilities retrofit program that has been responsive to the Federal effort for minimizing energy consumption and costs.

Demand Side Management
The Commission maintains its own electrical power generation systems, including two hydropower plants that harness energy from Canal reservoirs. Thus, utility incentive programs are not available. PCC additionally distributes electrical power from its plants to other Canal area consumers, primarily U.S. military components that implement their own energy conservation programs in accordance with Federal guidelines and objectives.

Mobility Fuel Usage/Vehicles
Diesel fuel needed each year by dredges, drillboats, towboats, launches, and other floating gear dominates PCC energy consumption. Operation of this equipment is governed by cyclic maintenance and improvement schedules, ship traffic, and other requirements beyond agency control. Over the years PCC engineers have significantly improved fuel conservation of its dredges by replacing or converting old heavy fuel oil steam-powered plants to diesel units and by intense renovation and modernization.

PCC's gasoline-operated vehicles have been replaced by diesel units, where feasible. Agency policy further supports vehicle fuel savings by ensuring appropriate classes of vehicles for assignments, driver training, conservative driving practices, trip consolidation and similar measures. Gasoline and diesel/petroleum distillate fuel consumption in FY 1996 totaled 224,000 and 5,780,000 gallons respectively, at costs of $183,200 and $3.5 million.

Energy Efficient Procurement
Close procurement coordination with PCC operating units ensures that environmentally-friendly products are obtained for buildings retrofits, replacements, and other energy improvement initiatives. The Commission considers conservation and efficiency in acquisition decisions, and purchases recycled items when they meet criteria for availability, cost, and performance standards.

During FY 1996, PCC continued its program of replacing old computer monitors with models that consume less energy during idle time. All new computers purchases meet the EPA Energy Star specifications stipulated by Executive Order 12845.

Environmental Activities
PCC's active recycling projects include recovery of computer paper for offer in Panama at fair market value. Scrap iron, used oil, surplus and excess items also are collected for resale and recycling as part of conservation and waste minimization operations.

The U.S. Military in Panama publishes a weekly newspaper and operates an English language television station accessible to Commission employees that actively promotes conservation and carries tips and information on energy use. PCC also furnishes agency-wide directives and prints bilingual articles in its bi-monthly official publication, *The Spillway*, to provide information on energy-related concerns.

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19. RAILROAD RETIREMENT BOARD (RRB)

Energy Efficiency Performance and Implementation Strategies

In FY 1996, the Railroad Retirement Board (RRB) reported a decrease of 9.4 percent in Btu per gross square foot compared to FY 1985.

The headquarters building in Chicago, Illinois is the only building over which the Railroad Retirement Board has operational control. RRB operates and maintains the building under a delegation of authority agreement with the General Services Administration.

RRB updated its energy conservation plan in March 1993 to incorporate the requirements of NECPA, Executive Order 12759, and EPACT.

In FY 1996, a decrease in electricity usage from the previous year resulted from the agency's energy conservation program. This was achieved despite the operation of new electric-drive chillers. RRB has invested in energy efficient equipment and items such as T8 fluorescent lamps, electronic ballasts, compact fluorescent bulbs, occupancy sensors, and air controllers. Additionally, building operation procedures have been refined to achieve the maximum energy savings.

The following energy efficiency actions further reduced energy consumption in FY 1996:

- installation of timers on water fountains and automatic light-controlling occupancy sensors in public areas and conference rooms, and
- reduction of agency labor hours worked on Saturdays.

Training

This agency does not meet the definition of an executive department under section 101 of Title 5 and therefore, is not subject to the energy management training provision of the Energy Policy Act. However, personnel responsible for energy management will receive the additional training that is to be provided by the General Services Administration under the EPACT requirements.

Funding

There were no operating funds available for energy conservation measures in FY 1996. GSA, as the Government owner of the RRB building, has the responsibility to fund projects over $50,000.

Energy Savings Performance Contracts

RRB has not entered into any ESPC contracts. The comparatively small size of potential contracts available to RRB—at a $50,000 limit because of the delegation of authority agreement with GSA—is not practical for this type of procurement.

Demand Side Management

No opportunities exist for utility demand-side services, incentives, or rebates, but RRB will continue to monitor its utilities for opportunities that may develop.

Energy Efficient Procurement

RRB has developed procedures to ensure procurement of energy efficient products, whenever cost effective.

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20. SOCIAL SECURITY ADMINISTRATION (SSA)

Energy Efficiency Performance and Implementation Strategies

During FY 1996, the Social Security Administration (SSA) began reporting its energy consumption separately from the Department of Health and Human Services.

SSA's strategy for meeting the goals of EPACT and Executive Order 12902 includes a combination of energy audits and energy conservation projects. For each of its delegated buildings, SSA has developed a Building Action Plan that identifies possible energy and cost saving projects.

Comprehensive energy audits have been conducted at six facilities comprising approximately half of SSA's square footage. By FY 1998, 70 percent of delegated space will be audited. Twenty percent is leased space and the remaining 10 percent will be audited by FY 2000. As a result of the audits, two contracts worth $6.7 million are being developed to retrofit equipment, replace chillers and conserve water for FY 1997. SSA's most energy intensive facility, the National Computer Center, will use a design/build contract with the local utility to install a new central heating/cooling plant, saving $271,000 annually. The central plant will have dual-fuel capability giving SSA flexibility in the operation of the plant and the ability to use the lowest cost fuel.

SSA has planned more than $67 million of building renovations between FY 1996 and FY 2000. While not exclusively energy projects, these renovations will include energy-efficient central heating and air conditioning plants, energy-efficient windows and doors, new central energy management systems, and lighting controls.

Training

Building managers and staff have attended a variety of training classes and conferences including life-cycle cost analysis, alternative fuels, lighting, controls, and demand side management practices, and has technical and contracting staff fully trained in ESPCs. In FY 1996, four SSA representatives attended TEEM '96, the General Services Administration's National Energy Conference.

To operate buildings more efficiently, SSA trains its mechanical staff on the operation and maintenance of energy-efficient equipment and systems.

Funding

SSA uses GSA's energy conservation funds for energy projects in its delegated buildings. Both agency and delegations funds are used to accomplish energy conservation projects that do not meet GSA's funding criteria. SSA supplements GSA funding with agency funds and has allocated funding for energy conservation measures in its FY 1997 budget. SSA will also receive $700,000 from GSA's energy efficiency fund to implement the National Computer Center energy retrofit.

Energy Savings Performance Contracts

SSA did not enter into any energy savings performance contracts during FY 1996. However, SSA has an area-wide utility contract which it uses to perform energy audits and energy conservation projects.

Demand Side Management

In FY 1996, SSA received $79,000 in utility incentives from demand side management initiatives.

Environmental Activities

SSA routinely recycles its lamps and PCB-containing ballasts. CFC-containing equipment has been reduced dramatically by replacing chillers in 5 of 11 central plants, nationwide. In FY 1997, three additional central plants will be replaced with energy-efficient, non-CFC equipment, and also in FY 1999, the remaining central plants using CFC in delegated buildings are scheduled to be replaced.

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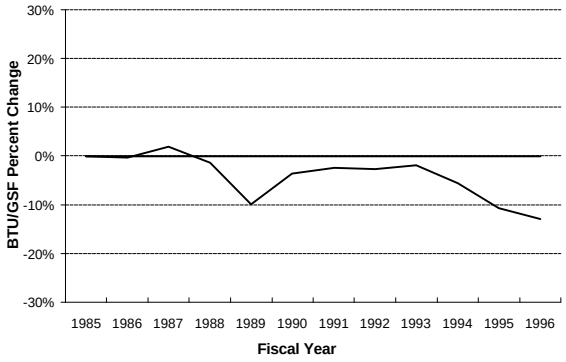
21. TENNESSEE VALLEY AUTHORITY (TVA)

Energy Efficiency Performance and Implementation Strategies

During FY 1996, the Tennessee Valley Authority reported a 12.9 percent decrease in energy consumption in Btu per gross square foot compared to FY 1985.

TVA Performance Toward Buildings Energy Reduction Goals



TVA's Energy Plan ensures the efficient use of energy in the operation, maintenance, and design of TVA buildings and facilities. During FY 1996, TVA's building and energy surveys identified 296 energy conservation opportunities (ECOs), evaluated 210 ECOs and implemented 93. The potential savings from these 93 ECO's is $190,877 per year, with an average pay back realized in 2.7 years.

To ensure TVA's proper compliance with Federal regulations and obligations under the Green Lights Program, TVA formed an Energy Conservation Committee (ECC). This committee is comprised of representatives from each TVA organization responsible for energy consumption in buildings and general operations inside the agency. The ECC coordinates efforts and maximizes implementation of energy-saving projects.

The following selected building projects were completed or in progress in FY 1996:

- Two new customer service facilities were designed and built to meet energy efficient design specifications,
- Variable frequency drives were installed on chilled water pumps and small motor air handling units at two facilities,
- LED exit signs were installed at Chestnut Street Towers in Chattanooga,
- Installed energy efficient light fixtures, T-8 lamps and electronic ballasts at four facilities,
- Motion sensor light controls were installed at four locations
- Lighting power controls were installed at four locations
- Energy management systems were installed in 12 facilities.

In FY 1997, TVA plans the following energy initiatives:

- Design and build the Cleveland Customer Service Center to energy efficient standards,
- Install high-efficiency lighting system, increased wall insulation, and HVAC improvements in the Nuclear Power Interim Office Building,
- Install additional lighting system renovations at the Watts Bar Nuclear Field Services Facility, and
- Energy efficiency projects at the Sequoyah Nuclear Plant.

Training

TVA provides training for employees as outlined in the agency's Internal Energy Management Program (IEMP). TVA provides updates on current Federal requirements and regulations for employees, managers, and TVA customers when requested. Ongoing energy management training is provided to managers of facilities. Building energy monitors are appointed and trained for all primary corporate buildings. TVA also educates staff in both energy and environmental related topics through the TVA University.

Funding

TVA is establishing funding procedures for energy management projects under IEMP. Buildings projects are primarily funded through renovation and modernization efforts. General operations projects are ranked for economic benefit compared to other TVA projects to determine funding availability and implementation status.

Energy Savings Performance Contracts

TVA considers the use of energy savings performance contracts when cost effective to TVA and its customers. TVA did not enter into any energy savings performance contracts during FY 1996.

Demand Side Management

TVA supports energy-saving demand side activities when cost effective and in the best interest of its customers. Strategies recommended in TVA's Integrated Resource Plan would increase implementation of demand side management programs. TVA is investigating the

potential for partnerships with its customers to develop demand side programs.

Vehicles
TVA added five electric sedans to its alternative fuel vehicle (AFV) fleet in FY 1996, bringing the total number of electric vehicles to 15. TVA continues to partner with distributors of TVA electricity to demonstrate the advancing electric vehicle technology. In addition to the electric vehicles, the TVA-owned AFV vehicle inventory at the end of FY 1996 included 23 M85 Flexible Fuel Vehicles and two compressed natural gas (CNG) dedicated vans.

During FY 1996, TVA discontinued the use of M85 AFVs because of maintenance problems, difficulty in locating trained technicians, unavailability of fuel, and fluctuating fuel cost. In addition, the experimentation with the use of ethanol in one of the M85 vehicles was not productive and was discontinued. User acceptance of the CNG dedicated vans was unfavorable due to concerns about the vehicles' range. In light of these experiences, TVA is focusing on electric vehicles as the alternative fuel vehicle for the future.

TVA encourages the use of mass transit systems for employee transportation when available. TVA also provides employees with a ride share locator service to aid employees in finding others who are traveling to the same location.

Environmental Activities
TVA has set as one of its three major corporate goals to become an environmental leader. In keeping with this goal, TVA was among the first Federal agencies to join the EPA's Green Lights program. TVA has embarked on a solid waste minimization program, sustainable architecture program, by-products with recycled content program, and a reduction of green house gases program.

TVA has completed Green Lights surveys on 123 buildings. This fiscal year, Green Lights implementation was completed in 93 buildings, with a projected total annual savings of $173,000.

TVA continues the "Waste Free" program in its corporate buildings. The reductions were achieved by replacing paper towels with hand dryers; employing reusable beverage mugs in place of styrofoam and paper cups; and recycling of white and mixed paper, cardboard, newspaper, plastic, glass and steel and aluminum cans. In addition to typical office waste, TVA continues to recycle used batteries, fluorescent light tubes, and PCB ballasts. TVA also emphasizes purchasing environmentally-friendly products that contain recycled content.

TVA is one of the first utilities to announce a plan to reduce its greenhouse emissions, which come primarily from coal-fired plants. A variety of programs are now under research and development.

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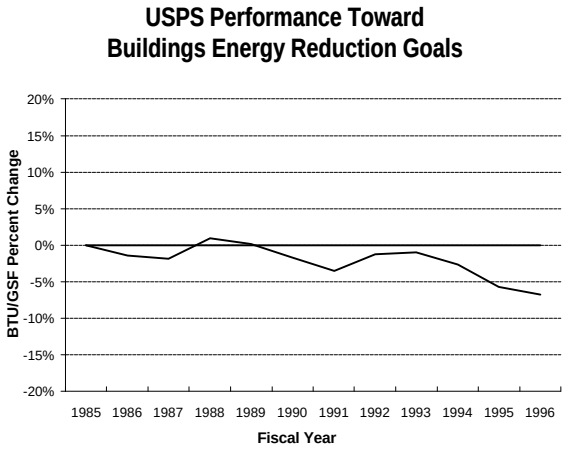
22. UNITED STATES POSTAL SERVICE (USPS)

Energy Efficiency Performance and Implementation Strategies

In FY 1996, energy use in U.S. Postal Service facilities decreased by 6.8 percent in Btu per gross square foot compared to FY 1985.



The United States Post Office Engineering group has overall responsibility for the Postal Service energy program. The Environmental Management Program (EMP) located at USPS headquarters is the focal point for the coordination, development and execution of corporate energy management plans. EMP coordinates and solicits participation from representatives from Facilities, Transportation, Procurement, Finance, and Engineering divisions to annually review existing energy plans and develop new strategies to assure compliance with the Energy Policy Act of 1992.

In each of the ten area offices, area environmental compliance coordinators (AECCs) are responsible for program administration of energy conservation within their geographical areas, and receive technical assistance from the maintenance support units. AECCs are responsible for the development of area-wide energy conservation plans and execution of energy projects.

At processing and distribution facilities, the maintenance manager typically is appointed as facility energy coordinator (FEC) and is in charge of the day-to-day conservation efforts. FECs report energy consumption, monitor performance, and identify energy retrofit projects. The postmaster or station manager is responsible for energy conservation at the customer service level. The District Environmental Compliance Coordinator (DECC) and manager of field maintenance operations provide program administration and technical support to FECs and postmasters. DECCs monitor and report energy performance for their districts, identify energy retrofits and provide planning assistance to their AECCs in developing the area energy plan.

The Postal Service has completed energy prioritization surveys to determine potential energy savings opportunities at over 30,000 postal facilities nationwide. Study results indicated that an 18 to 24 percent energy savings potential exists at various Postal-owned facilities. Results of a 1995 audit prioritization survey are being used to prioritize energy conservation projects and identify further energy savings opportunities through more comprehensive audits.

In keeping with energy usage reduction goals, new postal facilities are designed to meet cost-effective energy conservation criteria. The Postal Service has designated three buildings as energy showcase facilities, working with the Department of Energy, local utility companies and contractors to make these facilities examples of the Postal Service's energy conservation and efficiency efforts. New energy technologies incorporated into many postal facilities include: optimized envelope performance, energy efficient HVAC systems, daylighting controls, high efficiency lights, automatic lighting controls/occupancy sensors, passive solar design, and energy control management systems.

Training

Annual training is provided in public/private energy financing programs similar to the Federal Energy Management Program's Energy Savings Performance Contracts (ESPCs). The training classes are attended by area energy coordinators and representatives from each of the Procurement Service Centers.

Funding

In FY 1996, the Postal Service centrally funded $16 million for improving energy efficiency. Energy projects within the Postal Service are prioritized using criteria such as operational need, safety issues, value and return on investment to the Postal Service. Energy savings projects are identified through surveys conducted by field maintenance personnel. Funds for implementation of retrofit projects may be provided by the local and area office budgets or Headquarters.

Energy Savings Performance Contracts

The Postal Service began overseeing shared energy savings (SES) contracts, the agency equivalent to ESPCs, in 1987. To date, SES and showcase contracts have been implemented at 16 locations. Six SES contracts were

awarded in FY 1996 with annual projected energy savings of nearly $1.6 million.

Demand Side Management
Demand-side management services are one of the central strategies of the Postal Service's energy management program. The Postal Service continues to participate with utilities in demand-side management partnership activities.

The Postal Service has entered into partnership agreements with three utility companies, Portland General Electric, Northern States Power, and Florida Power and Light, to demonstrate the application of advanced technologies and practices for energy efficiency, water conservation, or use of solar and other renewable energy. Additionally, a partnership agreement with Pacific Gas and Electric allows the Postal Service to survey facilities and identify projects that will provide the greatest return on investment.

Vehicles
The Postal Service owns more than 200,000 vehicles, of which 145,000 are long life vehicles (LLVs). The LLVs are mostly dual-fueled Alternative Fuel Vehicles (AFVs) driven by local mail carriers. There are six electric cars in the LLV fleet.

The Postal Service continues to operate the largest compressed natural gas (CNG) fleet in the country, with an estimated 7,341 vehicles operating on CNG in 1996.

Energy Efficient Procurement
The Postal Service is exempt from provisions of the Federal Acquisition Regulations. This added latitude afforded in purchasing decisions enables the Postal Service to strongly consider factors such as energy consumption, efficiency, and life-cycle costing when determining contract awards.

Since FY 1994, USPS has been educating purchasing personnel regarding responsibilities under EPACT as well as other energy conservation issues, such as procuring energy-efficient products. In FY 1996, the Postal Service continued to emphasize purchasing of energy efficient and environmentally-friendly products through a series of briefings to all levels of management.

Additionally, a quarterly newspaper for purchasing personnel covers specific energy and environmental issues. Training materials have been developed to emphasize the roles and responsibilities of contracting officers in complying with energy and environmental regulations. Development of energy-specific guidance for inclusion in the Postal Service procurement manual is ongoing.

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